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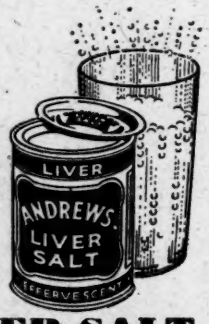

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LONDON SATURDAY AUGUST 15 1942

THE ROLE OF RENIN IN EXPERIMENTAL HYPERTENSION

BY

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AND

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In 1934 Goldblatt and others discovered that partial constriction of the main renal artery produces a marked and permanent hypertension in the dog. The renal experimental hypertension caused by this or other methods in laboratory animals is similar in many respects to human essential hypertension. It is not due to excretory insufficiency of the kidney or to an increase of blood volume or cardiac output, nor is it produced through a nervous mechanism. Houssay and Fasciolo (1937a, 1937b) have shown that renal ischaemia results in hypertension through a humoral mechanism. The ischaemic kidneys of dogs with chronic hypertension were grafted into the neck of normal or nephrectomized dogs. The arterial pressure of the recipient dog rose from 30 to 80 mm. Hg in 5 to 10 minutes, while grafting a normal kidney had no such effect. The citrated plasma obtained from the veins of these ischaemic kidneys produced vasoconstriction when perfused through a Läwen-Trendelenburg preparation ; normal plasma had no vasoconstrictor action (Houssay and Taquini, 1938).

Braun-Menendez and Fasciolo (1939a, 1939b) made the observation that acute partial ischaemia of the kidneys produced the same effects as chronic ischaemia: (1) if the artery of a normal kidney grafted into the neck of a dog was constricted a slight but definite increase in blood pressure was produced ; (2) the blood of acutely ischaemic kidneys when injected intravenously into anaesthetized dogs produced greater increases in blood pressure than control blood ; and (3) it had a vasoconstrictor action on the Läwen-Trendelenburg preparation. Braun-Menendez, Fasciolo, Leloir, and Muñoz (1939) prepared extracts from the venous blood of these kidneys and discovered a pressor substance which was named " hypertensin." They found that this substance could also be prepared *in vitro* by incubating at 37° C. blood plasma or serum with renin, a protein which is present in extracts of kidney (Braun-Menendez, Fasciolo, Leloir, and Muñoz, 1940a). It was also shown that renin is secreted by the ischaemic kidney and hypertensin is formed subsequently in the venous blood.

Our present knowledge on the mechanism of renal hypertension might be summarized as follows: The ischaemic kidney secretes renin. This protein is an enzyme which acts on a blood globulin (hypertensinogen) and gives rise to a substance (hypertensin) that has a direct vasoconstrictor action. Another enzyme, hypertensinase, which destroys hypertensin, is present in blood and tissues.

Some Properties of Renin.—In 1898 Tigerstedt and Bergman discovered that kidney extracts contained a pressor substance —renin. This substance is a protein, probably a globulin, and is inactivated by heat at 60° C. Its intravenous injection produces in the dog a gradual rise in blood pressure which lasts 10 to 30 minutes, depending on the dose. Consecutive injections of large doses at short intervals produce each time a smaller response. This phenomenon is called " tachyphylaxis," and was originally described by Tigerstedt and Bergman. Renin by itself is neither vasoconstrictor nor vasopressor ; these properties are due to the hypertensin formed by the action of renin on hypertensinogen.

Methods for the Estimation of Renin.—Two general methods can be used for the detection and estimation of renin. The first consists in comparing the rise in blood pressure caused by the injection of an extract or body fluid containing renin with that of a standard solution of renin. The second is based on the formation of hypertensin when renin is mixed with hypertensinogen. The hypertensin formed can be tested for its vasoconstrictor (Page, 1940) or pressor action (Leloir, Muñoz, Braun-Menendez, and Fasciolo, 1940b). The latter method (Leloir and others 1940a, 1940b), more reliable, has been used almost exclusively in our laboratory. This method is specific for renin, very sensitive, and quantitative within the limits of a bio-assay method. A unit of renin is the amount which, incubated for 2 hours at 37° C. with an excess of hypertensinogen, forms 0.5 unit of hypertensin. Applying these methods, it has been shown that renin is liberated:

1. By Totally Ischaemic Kidneys.—The re-establishment of the renal circulation of the kidney *in situ* after total ischaemia lasting 2 to 6 hours causes a rise in arterial pressure similar to that produced by an injection of renin. The venous blood of these kidneys has pressor and vasoconstrictor properties. Using the quantitative method of Leloir and his colleagues, it has been shown (Taquini and Braun-Menendez, 1941) that very large amounts of renin may be liberated by the kidney under these conditions.

2. By Ischaemic Kidneys of Hypertensive Dogs.—If the ischaemic kidney of a hypertensive dog is grafted into the neck of a normal dog a rise in blood pressure is produced similar to that produced by the injection of a small amount of renin (Fasciolo, Houssay, and Taquini, 1938). The venous blood of these kidneys has vasoconstrictor properties (Fasciolo, Houssay, and Taquini, 1938). Using the quantitative method of Leloir and his colleagues, renin was estimated in the renal venous blood of kidneys transplanted under the skin (Dell'Oro and Braun-Menendez, to be published). No renin was present in normal conditions, but after constriction of the renal artery, and coincident with the increase of blood pressure, variable amounts of renin (from 0.8 to 1.2 units per 12 c.cm. of plasma) were found in the renal venous blood and in the femoral blood of these dogs. All these results justify the conclusion that the ischaemic kidneys of dogs with experimental hypertension secrete renin into the blood.

3. By Kidneys in Acute Partial Ischaemia.—It has already been mentioned that a few minutes after partial constriction of the renal arteries renin can be detected in the venous blood of these kidneys.

Secretion of Renin by the Normal Kidney.—Apart from ischaemia due to constriction of the renal artery, are there other conditions which result in the secretion of renin by the kidney? Huidobro and Braun-Menendez (investigations to be published) have shown that hypotension due to haemorrhage or shock causes the liberation of renin by the intact kidney of normal anaesthetized dogs. Renin was detected and estimated in the systemic blood of these dogs. The inference is drawn that the kidney participates in the regulation of arterial blood pressure. When the blood pressure decreases the normal kidney secretes renin, which through the formation of hypertensin tends to the restoration of normal blood pressure. Renin appears to be a substance which the body uses to maintain homeostasis. Collins and Hamilton (1942) and Sapirstein, Ogden, and Southard (1941) have arrived independently at the same conclusions.

Formation and Mode of Action of Hypertensin

Enzymatic Action of Renin (Munoz et al., 1940)

The formation of hypertensin *in vitro* or *in vivo* is the result of an enzymatic reaction in which the substrate is a blood globulin that we have called "hypertensinogen," and the enzyme is renin. This affirmation is based on the following facts: (1) Renin is a protein: its activity is destroyed by heating (60° to 80° C.) and delayed or abolished at low temperatures. (2) The reaction between renin and hypertensinogen has a temperature optimum of 37° to 45° C. and a *p*H optimum of 7.5 to 8.5. (3) The yield of hypertensin is proportional to the amount of globulins. (4) If the amount of renin exceeds the optimum the maximum yield of hypertensin is not surpassed if 10 to 20 times more renin is used. (5) The time necessary for obtaining the maximum yield of hypertensin, or, in other words, the velocity of the reaction, depends on the amount of renin. (6) Hypertensinogen disappears in the reaction while renin does not.

This is the evidence which supports our assertion that renin is an enzyme. As the substrate on which renin acts is a protein, and the product of reaction is, as we shall see, probably a polypeptide, it is reasonable to classify renin as a proteolytic enzyme.

Specificity of Renin

Renin may be defined as the substance contained in kidney extracts which, when incubated with blood globulins, gives rise to hypertensin. Extracts of other organs—liver, spleen, placenta, etc.—do not contain renin. Recently Croxatto and Croxatto (1941) demonstrated that by the action of pepsin on hypertensinogen a vasoconstrictor and pressor substance is formed, the properties of which resemble those of hypertensin. These results, which have been confirmed by ourselves and by Helmer and Page (1942), constitute strong indirect evidence in favour of the enzymatic action of renin.

Renin has been found in human kidneys and in the kidneys of every mammal which has been investigated—ox, horse, dog, pig, sheep, goat, rat, rabbit, guinea-pig, etc. The incubation of renin from these animals with plasma from any of them gives rise to the formation of hypertensin. But no hypertensin is formed when any of those renins is incubated with human plasma. On the other hand, human renin is active on the plasma of any of those animals and also on human plasma. This peculiar specificity of renin led to the prediction that no pressor response should be obtained in man when pig's renin, for instance, is injected intravenously, while human renin should be active (Fasciolo, Leloir, Muñoz, and Braun-Menendez, 1940a). This prediction was verified by experiments (Battro and others, 1940). Bean (1942) found no renin in the kidneys of the species of fishes and amphibians studied by him. He found renin in the kidneys of fowl and duck which acted exclusively on blood belonging to the same class.

Hypertensinogen

Hypertensinogen, the substrate of renin in the reaction which leads to the formation of hypertensin, can be prepared from blood plasma or serum by fractional precipitation with ammonium sulphate or potassium phosphate. It is a globulin, probably a euglobulin, and is inactivated by heat at 60° C.

Attempts to obtain hypertensinogen from other sources than blood serum have failed: liver, spleen, thymus, testes, lungs, heart or skeletal muscle, milk and egg proteins, haemoglobin, serum albumin, and some vegetable proteins did not yield hypertensin when incubated with renin (Muñoz, Braun-Menendez, Fasciolo, and Leloir, 1940). Hypertensinogen can be estimated in blood samples by the maximum amount of hypertensin it produces. A unit of hypertensinogen is that which gives rise to one unit of hypertensin under the conditions outlined.

Hypertensin

This substance, which was discovered in the venous blood of ischaemic kidneys, is the product of the enzymatic reaction between renin and hypertensinogen.

In 1938 Kohlstaedt, Helmer, and Page showed that purified preparations of renin produced no vasoconstriction when perfused with Ringer's solution through a dog's tail or rabbit's ear, but that the vasoconstrictor activity could be restored by the addition of a protein-like substance contained in blood. They designated this substance renin-activator to connote that renin was inactive as a vasoconstrictor substance without it. Subsequently they found (Page and Helmer, 1940) that from the interaction of these two substances a new substance resulted with potent vasoconstrictor and pressor actions which they called "angiotonin." It is interesting how, coming in two different ways—the Indianapolis group via the purification of renin, and that of Buenos Aires via isolation of the active substance in the venous blood of ischaemic kidneys—both groups arrived independently and simultaneously at the discovery of the substance which results from the interaction of renin and blood.

Hypertensin is very soluble in water, insoluble in ether, thermostable, and acid-resistant. In NaOH 0.15 at 100° C. it is destroyed in 10 minutes. Kept in the cold store and free from contamination, hypertensin, dried or in solution, is stable. It can be salted out by ammonium sulphate. It dialyses through cellophane. It is inactivated by incubation with pepsin and trypsin. Although Page and Helmer report that the biuret reaction is negative, the inactivation by pepsin would indicate that it is a polypeptide. Some of its chemical and physical properties (velocity of diffusion) and its proteic origin are in favour of this idea. We have not been able to obtain a pure product, and this has compelled us to adopt an arbitrary unit in order to compare the pressor action of different solutions of hypertensin. A unit of hypertensin is the amount necessary, when given intravenously, to raise the arterial pressure of a 10-kg. chloralosed dog an average of 30 mm. Hg. A standard solution was prepared which has 1 unit per c.cm.

Hypertensin does not cause tachyphylaxis. When the dose is increased the rises in pressure in mm. Hg increase as the square root of the units injected, according to the formula $X = St\sqrt{y}$, in which X and St are the blood-pressure increases in mm. Hg obtained by the unknown and by 1 c.cm. of the standard solution respectively, and y the units of hypertensin contained in the unknown (Braun-Menendez, Fasciolo, Leloir, and Muñoz, 1940b).

The Pressor Action of Renin

There is strong evidence that the action of renin *in vivo* is due to the hypertensin formed by its action on hypertensinogen:

(1) The perfusion of renin in Ringer's solution through a vascular system does not produce vasoconstriction; but if mixed with blood globulins and perfused after short incubation, marked vasoconstriction results, due to the hypertensin formed. (2) The prolonged pressor action of injected renin may be explained by the continuous formation of hypertensin: a similar pressor effect is produced by the continuous intravenous infusion of hypertensin. (3) When renin does not form hypertensin *in vitro* it has no pressor action *in vivo*. For instance, pig renin, which does not give rise to hypertensin when incubated with human serum, does not produce a pressure increase when injected intravenously into human beings. (4) The pressor action of renin is greater when the concentration of hypertensinogen in blood is increased (dogs nephrectomized 48 hours previously) and smaller when decreased (adrenal insufficiency) or exhausted (by repeated injections of renin). (5) The pharmacological actions of renin and hypertensin are identical when injected into the animal, and are influenced in the same way by diverse drugs: no change of action by

Fourneau 933, cocaine, atropine, ergotamine, etc.; potentiation by veritol or ephetonine (Braun-Menendez, Fasciolo, Leloir, and Muñoz, 1940b).

The pressor action which renin exerts through the formation of hypertensin is perhaps not the exclusive mechanism in renal hypertension. It is very possible that other phenomena play their part. Perhaps also, after hypertension is initiated by renin, some changes occur in the body which contribute to maintain the elevated blood pressure, or vice versa.

Treatment of Renal Hypertension

The better understanding of the mechanism of renal hypertension may give us some indications as to the possibilities of a specific treatment. This should aim at (Muñoz, Braun-Menendez, Fasciolo, and Leloir, 1940): (A) suppressing or diminishing the secretion of renin; (B) destroying the renin secreted by the ischaemic kidney or inhibiting its reaction with blood globulins; (C) diminishing the amount of hypertensinogen; and (D) preventing the action of hypertensin by increasing the amount or the activity of hypertensinase or by some other mechanism.

(A) *Suppression or Diminution of the Secretion of Renin.*—In Goldblatt dogs, release of the constriction of the renal artery, removal of the clamp, or nephrectomy results in a drop to normal of the elevated blood pressure. In man the existence of hypertension with unilateral renal disease has been recognized. In many of these cases excision of the diseased kidney resulted in a return of blood pressure to normal with disappearance of other symptoms and complications. The development of collateral circulation in the ischaemic kidneys of Goldblatt dogs—whether spontaneous or promoted by decapsulation and implantation of omentum or spleen—results in a drop to normal of the elevated blood pressure. The promotion of collateral circulation has also been attempted in man by grafts of omentum or muscle in renal tissue with varying results.

(B) *Destroying the Renin secreted by the Ischaemic Kidney.*—It has been shown, first by Fasciolo (1938) and then by others, that the normal kidney exerts some sort of protective action against hypertension of renal origin. Grollman, Williams, and Harrison (1940) on a basis of indirect evidence believed that this action was due to an antipressor substance secreted by the normal kidney. They injected extracts of kidney to hypertensive rats and dogs, and obtained a decline in blood pressure. These extracts were active even on oral administration. Page and co-workers (1941) have also prepared different kinds of extracts of kidney, muscle, and lung which, when injected into dogs or rats with experimental hypertension, caused the blood pressure to fall to normal levels. They have obtained the same results in human beings with malignant hypertension. These studies are very important and promising, but for the moment it cannot be stated whether those extracts contain specific neutralizing or antipressor substances or whether their benefit arises from the introduction of non-specific foreign elements into the body. The attempts of Wakerlin and Johnson (1941) to neutralize the action of renin by immunological means have apparently been unsuccessful. Schroeder and Adams (1941) reduced the blood pressure of hypertensive human beings, rats, and dogs by the injection of tyrosinase. They reported that this enzyme inactivates renin *in vitro* in the presence of catechol and hypertensin in the presence of serum. Further evidence is necessary to judge these results.

(C) *Diminution of the Amount of Hypertensinogen.*—Very little, if anything, is known about the exact nature of hypertensinogen, its site of formation, etc. It is nevertheless theoretically possible to lower the blood pressure in renal hypertension by diminishing the amount of hypertensinogen. For the moment we know of only one way to obtain this result—that is, by the injection of large amounts of renin.

(D) *Increase of the Amount of Hypertensinase.*—Serum, plasma, or red cells, and extracts of many organs (kidney, liver, spleen, etc.) are active in destroying hypertensin, owing to the presence of a substance which we have designated "hypertensinase." This substance is destroyed by heating and has a *p*H optimum between 7.5 and 8.5. It can therefore be considered as an enzyme. Its action is not suppressed by anaerobiosis, cyanide, octyl alcohol, chloroform, thymol, toluol, fluoride, iodo-acetate, pyrogallol, etc. It is precipitated with ammonium sulphate between 0.3 and 0.6 saturation. It is inactivated in 20 minutes at 25° C. at *p*H 3.9. A unit of hypertensinase is the amount which destroys 0.5 unit of hypertensin in 4 hours in a volume of 10 c.cm. with an initial concentration of 1 unit of hypertensin (Fasciolo, Leloir, Muñoz, and Braun-Menendez, 1940b). Fasciolo and others (1940a, 1940b) have studied the distribution of hypertensinase in saline extracts of different organs. The highest content was found in the kidney and intestinal mucosa, the lowest in plasma or serum. Haemolysed blood cells contain a large amount of hypertensinase. We have made some preliminary essays injecting kidney and liver extracts rich in hypertensinase into hypertensive dogs. The results, though promising, have not been very clear. The fact that hypertensinase is a most unstable substance renders difficult its isolation in tissue extracts. These difficulties have hampered progress in this direction. Page now ascribes the antipressor action of his renal extracts to the presence in them of hypertensinase.

Conclusion

We believe that the therapeutic problem of renal hypertension has not yet been solved; but we are confident that the solution will be attained by a patient and thorough investigation of the underlying mechanisms which are involved in the production of renal experimental and human hypertension. In spite of the enormous progress of the past few years we still know very little about them. Let us hope that in the near future research will give medicine a new and powerful weapon to fight arterial hypertension, this most death-dealing malady to-day.

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H. D. Hahn (*Amer. J. Syph. Gon. ven. Dis.*, 1941, **25**, 200) reviews the literature of second infection in congenital syphilis, and comes to the conclusion that up till now no indisputable second infection in a congenital syphilitic patient has been reported. He records, however, two personal cases of reinfection in adequately treated congenital syphilis. In the first case there were thirteen years of clinical and serological negativity between the congenital and the acquired infection. In the second, though the serological test for syphilis never became entirely negative, there were at least eight years of clinical negativity, including a negative cerebrospinal fluid between the congenital and the acquired infection.

THE DISINFECTANT ACTION OF PHENOL AND OF ALCOHOL IN T.A.B.C. VACCINE*

BY

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The substitution by Felix (1941) of alcohol for phenol in T.A.B.C. vaccine in order to prevent destruction of the Vi antigen represents a considerable advance in the method of prophylactic inoculation against enteric fever. The alcohol, which was employed in a 22.5% or 25% concentration, was intended to fulfil the double purpose of preserving the activity of the Vi antigen and of guarding against infection by virtue of its antiseptic properties. Doubts, however, were soon raised as to its efficiency in this latter respect. Since Felix in his study of the bactericidal action of this substance worked with only one organism, *Staph. aureus*, and since he gave no protocols of any of his experiments, it was felt that the only satisfactory way of allaying these doubts was to carry out a series of observations in which the destructive effect of different strengths of alcohol on different organisms was compared with that of 0.5% phenol.

Technique

Four constituent laboratories of the Emergency Public Health Laboratory Service took part in these trials. Bottles containing 25 ml. of the following T.A.B.C. vaccines were distributed to each laboratory: (*a*) 0.5% phenol, Batch 18, Oct., 1940, prepared by the Lister Institute; (*b*) 22.5% alcohol. Batch A1, Sept., 1940, prepared by the Lister Institute; (*c*) 25% alcohol, Batch AA4, May, 1940, prepared by Dr. Felix.

The experiments were carried out during the summer and autumn of 1941. Observations were made on *Staph. aureus*, *Bact. coli*, *Ps. pyocyanea*, and, in three laboratories, on the spores of *B. subtilis* and *Cl. sporogenes*. With a few exceptions different strains of these organisms were used by different laboratories. The general plan of the experiments was as follows. The three species of non-sporing organisms were grown overnight on agar; the growth was washed off with quarter-strength Ringer solution and standardized by opacity. Equal amounts of suspension were then inoculated into each of the three vaccines. The mixtures were left at laboratory temperature, and samples were withdrawn at intervals and counted by the roll-tube or plate method. Tests with the sporing organisms were made in a similar manner, except that spore suspensions were used in which there were very few vegetative bacteria, or in which the vegetative bacteria had been killed by heat.

The technique used in the individual laboratories differed, however, in several respects. In one laboratory 10-ml. quantities of each vaccine were transferred to fresh sterile bottles and an inoculum of 0.1 ml. was added by a micrometer syringe; the exact quantity of the vaccine was thus known, and the dilution of the disinfectant was only 1%. In other laboratories the amount of vaccine in each bottle was not measured, so that minor variations from the supposed 25 ml. were almost certainly present, and the inoculum, which was added by a pipette or syringe, ranged from 0.25 to 0.5 ml., thus leading to a maximum dilution of the disinfectant of 2%. In three laboratories a viable count was made on the inoculum itself; in one laboratory the initial count was made on the vaccine immediately after the addition of the inoculum. The number of organisms inoculated varied from a few thousand to several millions per ml. of vaccine. The subsequent counts were made at different times in different laboratories. In one laboratory one count was made after 2 hours and another after 24 hours; in the others several counts were made within the first few hours and one after 24 hours. The temperature to which the organisms were exposed varied in different laboratories.

Assessment of Results

With so many variations in technique in different laboratories analysis of the results obtained presented great difficulty. Reproduction of the individual protocols is impossible by reason of space. Preliminary examination of the data showed that in many of the experiments the number of the counts was too few or their distribution too uneven to justify comparison by means of the reaction velocity constant, or by the method recently advocated by Withell (1942) of estimating the time taken to destroy 50% of the organisms. On the whole the best method seemed to be to work out the geometric mean of each series of counts. In doing this the initial count and the final count, if all three vaccines were sterile, were omitted, and the arithmetic mean of the logarithms of the remaining counts was calculated. Table I illustrates the use of this method.

TABLE I.—*Exposure of Ps. pyocyanea to Alcohol and to Phenol, showing Number of Organisms surviving after Different Times. Inoculum was 7,900 Organisms per ml. (Experiment 18 of Table II.)*

Time in Minutes	25% Alcohol		0·5% Phenol		22·5% Alcohol	
	Nos.	Log. of Nos.	Nos.	Log. of Nos.	Nos.	Log. of Nos.
20	2,280	3·3579	6,500	3·8129	3,740	3·5729
40	372	2·5705	5,000	3·6990	2,240	3·3502
80	12	1·0792	2,500	3·3979	1,660	3·2201
135	3	0·4771	160	2·2041	1,460	3·1644
255	0	0·0000	0	0·0000	672	2·8274
390	0	0·0000	0	0·0000	56	1·7482
Total		7·4847		13·1139		17·8832
A.M. of logs ..		1·2475		2·1857		2·9805
G.M.	18		153		956	

A.M. = Arithmetic mean. G.M. = Geometric mean. The 22·5% alcohol suspension was sterile after 24 hours.

The true sterilization time was not available, but the time at which the first sterile count was recorded was used as a rough index for comparing the activity of the three disinfectants in any one experiment.

Results

In none of the laboratories was evidence obtained to show that the strengths of the two disinfectants used had any destructive effect on the spores of *B. subtilis* or *Cl. sporogenes* within 24 hours. No further description of the results is therefore called for.

Twenty comparative experiments were made on *Staph. aureus*, *Bact. coli*, and *Ps. pyocyanea*. An illustrative protocol has already been given in Table I. A summary of all the experiments is provided by Table II. It will be seen that except for experiments 6 and 19, in which two or all three of the vaccines were sterile at the time of the first count, the geometric mean was least in the 25% and greatest in the 22.5% alcoholized vaccine, the count in the 0.5% phenolized vaccine occupying an intermediate position. Similarly in all the experiments in which the results could be compared, the 25% alcoholized vaccine became sterile first and the 22.5% alcoholized vaccine last. There seems, therefore, no reason to doubt the order of bactericidal potency of these three substances, though our data are not complete enough to enable us to state how much superior 25% alcohol is to 0.5% phenol, or 0.5% phenol is to 22.5% alcohol.

It will, however, be noted that even with very large inocula—far greater than would be likely to occur in practice as the result of using an imperfectly sterilized needle with which to withdraw vaccine from the bottle—there were only three experiments with the 22.5% alcoholized vaccine in which organisms were alive at the end of 24 hours. In experiments 4 and 11 the numbers of surviving organisms were 79 and 19

* A report to the Medical Research Council from the Emergency Public Health Laboratories at Exeter, Cardiff, Oxford, and Ipswich.

per ml. respectively. In experiment 8, with an inoculum of 9,000,000 per ml., the 24-hour count in the 22.5% alcoholized vaccine was 198,000 and in the 0.5% phenolized vaccine 9,800 per ml. In experiment 5 a 24-hour count was not made, but as the count at 7½ hours was only 8 per ml. there is every reason to believe that the vaccine would have been sterile within 24 hours.

With small inocula it is probable that sterility would be achieved with 22.5% alcohol in a time not very much longer than with 0.5% phenol. This supposition is supported by the finding of Dr. Carruthers at Cambridge that, with an initial inoculum of 80 to 150 organisms per ml., *Staph. aureus, Bact. coli,* and *Ps. pyocyanea* were destroyed by 25% alcohol within 15 minutes, by 0.5% phenol within 2 hours, and by 22.5% alcohol within 4 hours.

Laboratory C performed control experiments by inoculating along with each set of three vaccines a fourth bottle of heat-killed T.A.B.C. vaccine containing no disinfectant. In seven experiments the counts of the control vaccine at 2 and 24 hours did not differ from that of the inoculum by more than was to be expected from the sampling error of the technique, showing that no multiplication of the organisms had occurred. Even without any disinfectant, therefore, T.A.B.C. vaccine does not constitute a favourable medium for bacterial growth. The function of the added disinfectant is merely to deal with any organisms that may gain access to the bottle as the result of contamination. That 22.5% alcohol is capable of fulfilling this function there seems no reason to doubt.

TABLE II.—*Exposure of Different Vegetative Organisms to Alcohol and to Phenol*

Organism	No.	Laboratory	Approximate Temperature °C.	Inoculum: Organisms per ml. Vaccine	Geometric Means of Viable Counts per ml. Vaccine				Time of First Sterile Sample in Hours		
					No. of Counts	25% Alcohol	0·5% Phenol	22·5% Alcohol	25% Alcohol	0·5% Phenol	22·5% Alcohol
Staph. aureus	1	D	25–6	1,000	4	7	18	400	4	4	24
	2	D	23–5	1,500	5	21	40	214	4	4	24
	3	D	22–3	1,500	5	7	11	200	2	2	24
	4	A	20–2	7,100	6	304	1,235	5,811	7	24	>24
	5	B	—	13,000	6	10	86	380	2	4·5	> 7·5
	6	C	23	232,000	1	0	0	50,500	2	2	24
	7	C	21–3	3,300,000	1	30	2,900	760,000	24	24	24
	8	C	23	9,000,000	2	202	278,000	1,235,000	24	>24	>24
Bact. coli	9	B	—	1,300	3	0	1	19	0·5	1	4
	10	D	22–3	3,000	4	3	5	868	1	2	24
	11	D	20–1	3,500	6	15	22	573	4	4	>24
	12	A	20–2	10,400	7	215	493	2,938	5	7·5	24
	13	C	21	298,000	1	0	1,010	1,030	2	24	24
	14	C	23	4,200,000	1	0	410	69,000	2	24	24
Ps. pyocyanea	15	D	22–3	1,000	1	0	19	104	0·5	1	1
	16	B	—	1,500	3	1	3	70	0·5	0·5	2
	17	D	20–1	2,500	3	21	126	538	4	4	4
	18	A	20–2	7,900	6	18	153	956	4	4	24
	19	C	21–3	189,000	1	0	0	0	2	2	2
	20	C	21–3	11,700,000	1	63	2,400	57,000	24	24	24

Note.—Owing to the differences in the size of the inoculum and other conditions the figures should be compared only horizontally. It should also be noted that the times given in the last three columns are not true "sterilization times."

Discussion

The experiments just described were undertaken in order to solve a specific practical problem, not to make an academic study of the reaction velocity and other constants of alcohol. For this reason only their general plan was laid down, each laboratory being left a considerable margin of freedom to decide on the detailed conduct of the experiments. That the four laboratories placed the three disinfectant solutions tested in the same order of potency is therefore all the more convincing.

The failure of alcohol to bring about any appreciable destruction of spores is in conformity with the observations of previous workers (for references see Coulthard and Sykes, 1936). Similarly, 0.5% phenol is known to be without effect on spores (Chick, 1908). Our results with spores therefore call for no comment.

With vegetative organisms, 22.5% and 25% alcohol and 0.5% phenol all proved to be moderately bactericidal. The order of potency, as determined by the four different laboratories using three different species of organism, was uniformly consistent, 25% alcohol proving the most and 22.5% alcohol proving the least bactericidal. The difference in killing power between the two strengths of alcohol was remarkable. It has been demonstrated by Minervini (1898) that the most germicidal concentration of alcohol is between 50% and 70%. Above and below this level its effect is less. Judging from the findings of Tilley (1939) that in the 26% to 34% range a decrease of 2% in concentration approximately doubled the time necessary for sterilization of *Bact. typhosum,* and from our observations that a fall from 25% to 22.5% produced an even greater effect, it seems clear that the slope of the curve depicting the germicidal potency of alcohol in the 20% to 35% range of concentration must be fairly steep.

So far as it is permissible to compare the rate of destruction of *Staph. aureus, Bact. coli,* and *Ps. pyocyanea,* our results showed little difference in the behaviour of these three organisms. Lockemann, Bär, and Totzeck (1941), on the other hand, found that *Staph. aureus* was considerably more resistant to all strengths of alcohol than either *Bact. coli* or *Ps. pyocyanea.*

Summary

Four laboratories carried out experiments in which the disinfectant action of 22.5% and 25% alcohol was compared with that of 0.5% phenol in T.A.B.C. vaccine.

A few observations made on the spores of *B. subtilis* and *Cl. sporogenes* failed to reveal any bactericidal activity of the three vaccines.

Eight experiments were carried out with *Staph. aureus,* six with *Bact. coli,* and six with *Ps. pyocyanea,* in which known numbers of organisms were inoculated into each of the three vaccines and in which the survivors were estimated at varying intervals of time by the roll-tube or plate method of counting.

In every experiment in which the figures were suitable for comparison it was found that the organisms perished most rapidly in the 25% and least rapidly in the 22.5% alcoholized vaccine, the 0.5% phenolized vaccine occupying an intermediate position in this respect.

Reasons are given for believing that 22.5% alcohol is only slightly inferior to 0.5% phenol in its germicidal potency, and that it is capable of destroying within a few hours vegetative bacteria that may gain access to T.A.B.C. vaccine by contamination.

There is no ground for the fear that the 22.5% alcohol used in Felix's new vaccine is likely to prove inefficient as a preservative.

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The Board of Education have recently issued a circular (1594) on the use of raw vegetables in school meals. They list the vegetables which can be used, briefly describe methods of preparing them, and give a few simple and useful recipes.

A MATERNITY SERVICE SCHEME*

BY

DAME LOUISE McILROY, M.D., F.R.C.P., F.R.C.O.G.

In opening a discussion on maternity services the starting-point must be the welfare of the patient and her wishes in the matter. A maternity service scheme must fit in with the general plan of a composite State medical or health service. With the establishment of the Royal College of Obstetricians and Gynaecologists, obstetrics takes its place on an equal footing with medicine and surgery and is not merely a special branch. It has had close collaboration with the public health services. The introduction of ante-natal care has given a much wider scope for the practice of preventive medicine, and teaching has expanded beyond the abnormalities of the bony pelvis and the positions of the foetus. The obstetrician now works in collaboration with the orthopaedic surgeon, the paediatrician, the cardiologist, and the tuberculosis specialist. The help of the pathologist and the radiologist is often required for accurate diagnosis, and much more time is now expended upon the clinical examination of the patient than formerly.

Social services also play a large part in the practice of midwifery. Institutional expenditure in other directions could be reduced if we could reduce or eliminate the blindness due to ophthalmia of the newborn. Mental deficiency due to injuries at birth could be lessened to some extent; also tuberculosis, if there were more provision for prolonged residence in sanatoria and facilities for childbirth in these institutions. With more efficient post-natal care the crippling effects of child-bearing upon women would also be lessened. Ante-natal care would lower the neonatal death rate due to prematurity, birth injuries, and malnutrition.

The Economic Aspect

The economic aspect of maternity practice is of the utmost importance to the State. In my opinion, infant welfare should be under the direction of the paediatricians after the first month of life. Gynaecology cannot be separated from obstetrics, as treatment is required for post-natal complications.

Much of the organization of the maternity services has been haphazard and lacking in co-ordination. This to some extent has been inevitable. New ideas and methods had to be tried out by voluntary organizations and proved of value before public funds could be utilized for anything approaching an experiment. Legislative reforms have brought about great advances in midwifery, such as the various Midwives Acts. Local authorities were given permission to make use of public funds for maternity and child welfare work. It might have been better if in some cases these powers had been made compulsory. The Local Government Act of 1929 made a great advance in the establishment of maternity beds in municipal and county hospitals. The London County Council is an outstanding example of this improvement. It is more satisfactory to have a maternity department in a large general hospital than in isolated units, with the exception of small maternity homes linked up with larger hospitals. In a general hospital auxiliary services are easily obtainable for consultative work, and there is economy of staff and equipment.

Defects in Present Maternity Services

In building up a scheme it is well to find out what is essential, what is deficient in existing schemes, and what should be avoided. In some areas under a keen medical officer of health the arrangements are excellent and the work with the local practitioners is harmonious. In others the standard of efficiency is low. Neonatal mortality on the whole has been very little reduced during the first twenty-four hours of life. For this the obstetrician must bear the responsibility. The chief defects in our present maternity services are the limited number of beds in industrial areas. Ante-natal and post-natal beds especially are very inadequate. Emergency cases in rural areas may have to be sent long distances because no beds are available and general hospitals may have little provision for maternity cases.

In the future it is probable that domiciliary midwifery will be still further reduced owing to the difficulties of housing and home service. Flats are unsuitable and are noisy, and women should not have their confinements in slum dwellings.

Rest from household cares and good nursing have a highly beneficial effect upon the nerves of women. These conditions are supplied by hospitals and local maternity homes. Since the war, residents in evacuation areas often are forced to have their confinements in overcrowded homes, as the local maternity homes are booked up for patients coming from cities and towns in more dangerous areas. Convalescent homes are also an important part of a scheme for maternity services, for ante-natal as well as for post-natal cases. Patients are sent out of hospital too soon in some cases owing to pressure upon the beds for childbirth.

Ante-natal clinics in connexion with maternity hospital staffs are satisfactory, as there is continuity of supervision throughout pregnancy and childbirth. In country and municipal ante-natal clinics, however, the assistant medical officer may have had little clinical experience of midwifery, his special qualification being the possession of a diploma in public health. The chances of promotion in such a service, for women especially, are small owing to lack of special training in administrative methods. Local authorities, however, are beginning to recognize this difficulty and to insist upon a diploma in midwifery. If complications arise during pregnancy the patient is sent either to hospital or to a local practitioner who may not be very much interested in her condition as she preferred to attend the clinic at the outset of the pregnancy. In cases where a midwife is in attendance at the confinement a local doctor is called in if any complication arises, and, with no personal knowledge of the patient's previous condition, he may criticize the treatment at the clinic. If the patient is seen later at the post-natal clinic, criticism may be made of the methods employed at childbirth. Midwives who do not work with a recognized team of practitioners serving on a midwifery rota find it not always possible to get help in an emergency, and delay may be serious for the patient concerned.

The fault lies in this practice of dual responsibility and absence of continuity of supervision. This may be illustrated by the proverb, "Never swap horses while crossing a stream."

In some areas, especially when at a distance from towns, the local practitioners should be chosen as a team because of their competence to practise midwifery, and consultative clinics and services should be available. Facilities for hospital treatment should be readily obtainable. The patient should not be discharged from the supervision of the doctor and midwife until four weeks after the confinement. This would to some extent reduce the difficulties which are met with in breast-feeding.

Voluntary and Municipal Hospitals

We owe a great debt of gratitude to voluntary organizations and hospitals in midwifery practice. I am glad that Mr. Ernest Brown—the Minister of Health—intends to retain these institutions in a general scheme for medical services. Voluntary contributions will be difficult to obtain after the war, and financial assistance will have to be given by the State if the voluntary hospitals are to retain their individuality. This may mean a loss of administrative control and independence, but the hospitals will gain by being included in the general scheme and given a definite position therein.

This will do away with overlapping and waste of beds in some areas, and will supply accommodation in other areas where hospital resources are inadequate. This would also reduce the long waiting lists for admission and the overcrowded out-patient departments. The voluntary hospitals have done much for teaching by supplying clinical facilities for the medical schools. The healthy spirit of competition does a great deal to make the individual wish to excel. Each special department of the large hospital is sponsored by an honorary head or "chief," who feels himself responsible for its efficiency and,

* Abstract of opening remarks in a discussion at the Obstetrical Section of the Royal Society of Medicine, May 15, 1942.

by having a say in the appointment and control of his staff, expects whole-hearted co-operation and loyalty.

Consultants are now paid in hospitals such as those of the London County Council, some being whole-time and others part-time. The question is, Will the future generation of consultants be willing or able to serve as honorary members of the voluntary hospital staff? The answer is not far to seek. The traditions of the voluntary hospitals must not be lost, as they are a bulwark against a completely socialistic scheme of State service. Co-ordination of the hospitals is being achieved to some extent by the establishment of the Emergency Medical Service hospitals and by the Nuffield Provincial Hospitals Trust. These are on the lines of central councils and hospitals, with regionalization of areas. The Council of the King Edward's Hospital Fund for London has done much to improve the buildings and equipment of the voluntary hospitals. Would a whole-time State Medical Service give the same incentive to original research as the voluntary system? Would promotion depend upon clinical or administrative ability?

Participation of the G.P.

In general practice, midwifery has declined to a great extent owing to the efficiency of the midwives services, the establishment of clinics and hospital beds, and also because of the unsuitability of patients' homes. The decline of the birth rate is also a factor.

The national health insurance does not directly include the treatment of midwifery patients, nor does it give special consultant services and hospital accommodation. The panel doctor is too busy to take up midwifery practice with its inadequate remuneration, and he objects to the risk of criticism from local health authorities if cases should go wrong. Cottage hospitals have a limited number of local practitioners in attendance, and others may be excluded from the treatment of their patients when admitted. Small maternity homes should be established where the family doctor can admit and be responsible for the treatment of his own patients. Consultants and auxiliary services should be available from a larger supervising hospital centre.

In rural areas the family doctor would act in a part-time capacity, as he would have to undertake other branches of medical practice. Women prefer local hospitals, where they can be kept in touch with their families and relatives. The family doctor has been the trusted adviser and confidant of his patients as is the priest and lawyer. He is chosen because of the personal element. He knows the home conditions and circumstances as no whole-time practitioner or consultant can know. In official centres case records are open to the inspection of a staff which is under no Hippocratic oath. Consultation clinics do much to relieve the anxieties of the general practitioner, and discussions can take place as to diagnosis and treatment. The family doctor is, moreover, the first line of defence in the case of disease. But the doctor must have adequate training and must keep up to date by regular refresher courses in larger centres.

A team of doctors and midwives working in collaboration with a keen medical officer of health would ensure good results in these areas. Local clinics or centres could be established for interviewing and treating patients, but such centres would have to be instituted by the local health authority, as otherwise there would be difficulties of administration. Payment for work done would be given by the health authority and collected, when possible, from those patients who could afford to pay or who are specially insured. If any criticism arises it should be considered first by the committee of local practitioners and consultants before being judged by a lay board of management.

In Scotland, domiciliary midwifery is more in the hands of the general practitioners than it is in England and Wales. The midwives work directly under the doctor. The Scottish Board of Health Act, 1937, was a scheme for this co-ordination of practitioners, midwives, and consultants, and it has been established in a large number of areas. Lanarkshire, with its central maternity hospital at Bellshill, is a notable example of its efficiency. The patient has a choice of doctor from the local team of practitioners. The consultants on the staff of Bellshill Hospital must hold the membership or fellowship of the Royal College of Obstetricians and Gynaecologists.

A Basis for Discussions

The Russian public health services seem to provide a basis for many discussions on proposals for a State Medical Service in this country. In Russia all medical education is free and all doctors are whole-time practitioners under the U.S.S.R. The whole aim of the service is the prevention of disease. Every citizen has a right to free medical treatment. Some of the expense is recovered by contributory schemes of health insurance. Women in employment get full pay before and after confinement if off work. The medical practitioners get study-leave and retire on pensions. In the local areas are health centres or polyclinics, and these are linked up with larger centres and hospitals. The teaching schools and research department form the centre of the scheme. Local and central committees or soviets control administration.

A maternity service should give the patient a choice of doctor at the periphery, and consulting and specialist services should work towards the centre. There should be a central advisory committee composed of representatives from the universities, the Royal College of Obstetricians and Gynaecologists, the British Medical Association, Central Midwives Board, College of Midwives, hospitals, and other organizations interested in the practice of midwifery. The administration of such a maternity service should be in the hands of those who have a considerable knowledge of the practical side of obstetrics as well as of public health.

HYPEROSTOSIS FRONTALIS INTERNA*

BY

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Irregular formations of bone on the internal table of the skull have often been observed at post-mortem examinations and among museum specimens, but little notice was taken of the condition until Stewart in this country and Morel in France drew attention to the presence in these cases during life of symptoms suggestive of hypothalamic disturbances.

Cases in the Literature

Stewart (1927–8) recorded 5 fatal cases personally observed by him and called attention to their association with mental symptoms and obesity; and Morel (1930), describing the first living case, noted the presence of cataleptic seizures, excessive eating and drinking, adiposity, and delusions and hallucinations. There followed various surveys of radiological and museum material with a view to determining the frequency of the syndrome, notably by Sherwood Moore (1935, 1936a, 1936b), who carried out a survey of 6,650 radiographs accumulated over a period of 24 years; by Eldridge and Holm (1940), who described the *x*-ray findings in 200 patients consecutively admitted to a mental hospital; by Greig (1928), who examined 188 crania in the museum of the Royal College of Surgeons of Edinburgh; and by Yolton (1927–31), who described 4 specimens. The histories of many of these cases were reviewed, and in the last 12 years numerous additional cases have been published, notably by Van Bogaert (1930), Schiff and Trelles (1932), Eisen (1936), Moniz (1938), Hemphill and Stengel (1940), Gollan (1939), Casati (1936), Fracassi and Marelli (1936), Fattovich (1938), Roger (1938), Perkins and Biglan (1938), James (1936), Lehoczky and Orbán (1938), and Reider (1938–9).

Bartelheimer (1939a, 1939b) specially noted the association with diabetes. The literature on the subject is now fairly extensive, and it is interesting to note in this connexion that only 3 living cases were recorded before 1935—those of Morel (1930), Van Bogaert (1930), and Schiff and Trelles (1932). In view of the large amount of museum material it would seem that many examples of the syndrome were missed prior to that date. This argument, however, is hardly conclusive, for the surveys of radiological and museum material have shown that hyperostoses

* Synonyms: Morgagni's syndrome (Henschen, 1936); syndrome of Stewart-Morel (Schiff and Trelles, 1932); metabolic craniopathy (Moore); intracranial osteophytes (Greig, 1928).

may be present without any symptoms, the patient dying from some unrelated disease. It seems clear from published observations that the hyperostoses are often present for a long time before any further symptoms develop. Bartelheimer, for example, noted that a patient of his had a chronic headache for 30 years before further symptoms appeared. About 50 cases in which definite hypothalamic symptoms were present, such as disordered fat metabolism, raised glucose tolerance, polyuria and polydipsia, and sleep disorders, have been recorded during life. In addition many of the patients have developed a progressive dementia, and in a few cases cranial nerve palsies have been noted, probably due to encroachment of new bone on foramina.

The marked preponderance in the female sex noted by Moore, Canavan (1938), Greig (1928), Dressler (1927), Carr (1936), and others serves to differentiate this condition sharply from a localized form of leontiasis ossea and from osteitis deformans, to which the bony changes bear a close resemblance in some cases. Some writers have, in fact, described cases under these heads—e.g., Schuller (1918), Bonnamour and Jamin (Morel, 1930). Another notable feature is the age incidence. The great majority occur about the menopause. Some, however, have been found among senile inmates of mental hospitals.

Radiological examination usually shows the hyperostosis as an irregular thickening of the vertical part of the frontal bone, the region of attachment of the falx being free. The surface may be irregular, with numerous spikes, or smooth and nodular. The outer table is never involved. In a few cases calcified masses have been seen in the sella turcica.

Careful microscopical examination of the hypothalamic region and pituitary has been made in only a few cases. Degenerative changes have been described by Morel, Stewart, and others, but in some cases nothing abnormal has been detected. It would seem, however, that the close association in function of hypothalamus with pituitary has not been realized by all observers, and in some instances failure to make a detailed examination of the pituitary may account for negative findings.

Case Record

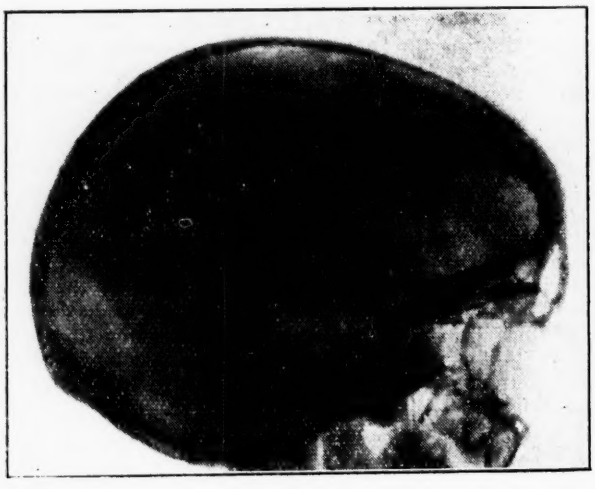
The patient, a female wardrobe dealer aged 45, had married twice and had had 10 living children. She had had one miscarriage—triplets when five months pregnant, in 1935. She had white-leg after this, and was of the opinion that all her trouble started then, as she had never felt well since. She began to have menorrhagia, with periods lasting eight days and intervals of two weeks. Hysterectomy—probably for fibroids—was performed in 1936 when three months pregnant. Between Aug., 1937, and Aug., 1940, she was four times in hospital with phlebitis of the left leg. In Aug., 1940, while in hospital, she was found to have glycosuria; a diagnosis of diabetes was made after blood-sugar estimations, and she was discharged on a 7-line diet and 40 units of insulin a day. Towards the end of 1939 she began to have narcoleptic attacks, which led to a cessation of insulin treatment, as they were thought to be hypoglycaemic. Later, however, insulin treatment was resumed, and subsequent attacks were considered to be due to diabetic coma.

The patient was evacuated to Cornwall in Oct., 1940, and was admitted to the Royal Cornwall Infirmary for suspected hypoglycaemic coma on March 14, 1941. She recovered consciousness shortly after arrival in hospital, but had several attacks in the next few weeks. Her weight had always been constant until the middle of 1940, when she suddenly began to gain. As this time coincided approximately with the beginning of the period of strict rationing, the gain in weight was considered odd. She was 11 st. 10 lb. on admission, having put on 2 st. in 9 months. There was no complaint of failing vision, but she noticed that before her sleepy attacks she went rather deaf. Her most troublesome symptom, apart from the attacks of somnolence, was a dull frontal headache which nothing seemed to relieve. There was no thirst, appetite was moderate, and the amount of urine was not increased.

Examination showed her to be of average mental development, with good memory and normal concentration; she was talkative and sociable, always ready to discuss her large family, with each of whom she kept up a correspondence. Pupils reacted sluggishly to light, more briskly on accommodation. Both optic disks were pale, especially in the temporal halves, and both visual fields showed concentric contraction. Moderate nerve deafness was present on both sides. There was general muscular weakness, particularly in the arms. The arm reflexes were normal; knee- and ankle-jerks were present; the plantar reflexes were flexor; and the gait was steady. No rhombergism and no incoordination to finger–nose or heel–knee tests were observed. There was a remarkable dulling of pain sensation on both sides over the trunk and all four limbs: so definite was this that a needle could be introduced anywhere without complaint of pain. Stereognosis was normal. Tactile localization and discrimination, compass points, and joint sense were also normal. The heart was slightly enlarged, and the blood pressure 160/80. The liver was palpable an inch below the costal margin. There were noticeable fat deposits on the buttocks, thighs, and lower abdomen, but no nodules and no tenderness.

Narcoleptic Attacks.—These came on at irregular intervals. Sometimes there would be several in a day, sometimes freedom for a week. They lasted from a few minutes to an hour, and occurred at any time of the day. None was observed during the night. They started with a dull headache that lasted for several hours, after which she passed into a sleepy state and could be roused with difficulty. The pupils were normal in size, but no reaction to light could be obtained during the attack. The limbs were spastic, with exaggerated deep reflexes, but the plantar reflexes remained flexor. Ankle clonus was observed on both sides on one occasion. During the attacks she perspired profusely, and on being roused complained of feeling cold. Pain sensation, visual fields, and hearing, tested roughly during the period of recovery, showed further restriction. Onset and termination were never abrupt. Once she had visual hallucinations when recovering from an attack. The blood sugar during one attack amounted to 130 mg. per 100 c.cm.

Glucose tolerance estimated in a clear interval showed: fasting blood sugar, 150 mg. per 100 c.cm.; one hour after, 210 mg.; two and a half hours after, 190 mg. The blood urea was 29 mg. and the serum calcium 9.8 mg. per 100 c.cm. The cerebrospinal fluid was clear, and showed no increase in pressure: cells 2 per c.mm.; albumin 0.025%; globulin normal; chlorides 750 mg. per 100 c.cm.; sugar 0.08%. Urine examination revealed glycosuria on an average of three days out of four. Specific gravity averaged 1026. There was nothing abnormal on microscopical examination. The temperature chart showed several unaccountable rises to 99.4°, but was otherwise normal. Radiologically, no changes were present in any bones other than those of the skull, a radiograph of which is here reproduced.



Hyperostosis on the internal surface of the frontal bone. Diploe is invaded at one point, but the outer table is not involved. Antero-posterior view, midline free; enlarged frontal sinuses.

During her time in hospital she had one troublesome attack of phlebitis in the left leg. The narcoleptic attacks were so well controlled by 10 mg. of benzedrine sulphate daily that in the three weeks previous to discharge she had only one attack of short duration.

Discussion

In view of the association of pituitary and other endocrine function, present interest centres largely on the possibility of the bony changes being due to some disorder of parathyroid secretion. While it can hardly be said that the secretion of a parathyrotrophic hormone by the pituitary has been proved, a number of observations are at least suggestive—e.g., the association of parathyroid adenomata with hypophysial tumours noted by Hadfield and Rogers (1932), Gerstel (1938), Husslein (1939); the degenerative changes in the parathyroids of hypo-

physectomized dogs noted by Koster (1928), Houssay and Sammartino (1933, 1934), and Smith (1927); and the effects of pituitary extracts in causing parathyroid enlargement, noted by Anselmino and others (1935). In an examination of the parathyroids reported by Hemphill and Stengel (1940) it was found that three of the four glands present were unusually small. The three smaller glands showed an increase of pale oxyphil cells; the fourth was formed exclusively of these. These changes suggest overactivity in a set of glands which for some reason were smaller than normal. Serum calcium changes have been noticed in only a few cases; in a series examined by Tager, Shelton, and Matzen (1939) the figures were within normal limits.

Further problems are those presented by the high incidence in the female sex (98% in Moore's series) and the restriction of bony changes to the frontal bone.

From the point of view of diagnosis the importance of the syndrome lies in the danger of treating the patient for something she has not got. My patient has been treated once as a case of hypoglycaemia and once as a case of diabetic coma. The fact that she was insulin-resistant probably saved her from harm on that occasion. In some cases, however, a diagnosis of cerebral tumour has led to unnecessary operation. A knowledge of the existence of the syndrome should serve to protect from these mistakes, and a radiograph of the skull which includes the frontal bone will always serve to establish the diagnosis.

Summary

A case of hyperostosis frontalis interna is described and the literature briefly reviewed. Features of the case were narcoleptic attacks controlled by benzedrine, increased glucose tolerance, sudden gain in weight, restricted fields of vision, nerve deafness, and typical radiological findings.

The importance of the syndrome lies in its differentiation from conditions requiring active medical or surgical intervention.

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P. Robinson (*Amer. J. Dis. Child.*, 1941, **62**, 701) during the last two years has seen at Tel Aviv six cases of favism, an acute haemolytic anaemia due to ingestion of woad berries (*Vicia fava*) and hitherto unknown in Palestine. Favism is most common in Sicily and Sardinia, but only sporadic in other countries. The onset is sudden, with vomiting and diarrhoea, the skin turns pale grey, the eyes become sunken and consciousness clouded. The red cells sink to 1,000,000 or less per c.mm. and the haemoglobin content to 10%. Recovery, which begins spontaneously, is assisted by blood transfusion and takes place in from one to two weeks. Deaths are rare. Its course is like that of Lederer's anaemia, but in favism relapses are common.

ACUTE LARYNGITIS AND SEPTICAEMIA DUE TO H. INFLUENZAE (TYPE B)

BY

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Attention has recently been drawn by Sinclair (1941) to a very severe and often fatal form of acute laryngitis and septicaemia in young children due to *Haemophilus influenzae*. These infections have occurred with increasing frequency in the U.S.A., and the following case is the first of a similar nature to be recorded in this country.

Case History

A male child aged 2 was admitted on Dec. 15, 1941, for laryngeal stridor. He first became ill 2 days previously, when he began to scream, and it was noticed that his breathing was difficult. This persisted until admission.

On examination the temperature was 101° F., the pulse rate 156, and the respirations 28 a minute. The latter were accompanied by inspiratory stridor and recession of the intercostal spaces. The uvula and fauces were symmetrically swollen and very hyperaemic, but no membrane was visible. Laryngeal diphtheria was diagnosed, and 65,000 units of antidiphtheritic serum were given intramuscularly in 5 doses over 12 hours. The laryngeal obstruction was so severe that tracheotomy was done 3 hours after admission, and while this relieved the stridor and temporarily improved the pulse rate, the latter and the respiration rate soon returned to 160 and 32 respectively. The clinical condition remained poor, the child being prostrated. On the 18th a pleural rub appeared at the right base and he was put into an oxygen tent. The following day there were signs of bronchopneumonia, for which sulphanilamide was given. He died in coma on the 21st, 6 days after admission.

Bacteriological examination of a throat swab on admission gave a growth of *Corynebacterium hoffmanni*, which was confirmed on Horgan and Marshall's medium. Swabs taken from the larynx at the tracheotomy gave a pure growth of *H. influenzae*. Repeated swabs from the nose, throat, and larynx failed to grow *C. diphtheriae*. The blood count showed haemoglobin, 74% (Haldane); white cells, 9,600 per c.mm.

Necropsy

This was performed 22 hours after death, and revealed a well-developed, well-nourished male child with no external abnormality except a clean tracheotomy wound. The pericardial sac was distended with approximately 80 c.cm. of thick yellow purulent exudate, which was moderately adherent to both layers. The myocardium, endocardium, valves, coronary arteries, and great vessels were normal. The larynx, glottis, trachea, and main bronchi were normal except for a clean incision in the trachea. Both pleural cavities were filled with thick yellow pus extending into and encysted in the interlobar septa. The lungs were compressed but air-containing, and exuded a little frothy fluid on pressure. No pneumonic consolidation or bronchitis was detected. The mediastinal glands were slightly enlarged and congested, but were otherwise normal. The mouth, fauces, tonsils, pharynx, oesophagus, stomach, intestines, mesentery, and peritoneum were normal. The liver was enlarged and pale from fatty change. The gall-bladder, biliary passages, and pancreas were normal. The spleen showed lymphoid hyperplasia only. The genito-urinary, endocrine, and central nervous systems were normal.

Microscopical Examination.—Sections from the heart and lungs revealed severe purulent inflammation and numerous Gram-negative bacilli. The lung parenchyma showed a little albuminous fluid in the alveoli but no evidence of inflammatory disease. In the liver there was severe fatty change only.

Bacteriological Examination.—Cultures from the pleura, pericardium, and heart blood gave a pure growth of *H. influenzae*. The cultures grew well on boiled blood agar, and the colonies were smooth; suspensions in normal saline were agglutinated* by Type B serum to a titre of 1/100. No agglutination was observed with Types A, C, D, and F in any dilution.

Discussion

It is difficult to evaluate the pathogenicity of *H. influenzae* in man owing to many strains which appear to lead a saprophytic existence in the human nasopharynx; while others

* These sera were made available through the kindness of Dr. Margaret Pittman of the U.S.A. Public Health Service, to whom I am greatly indebted.

are capable of rapid invasion and often fatal infections typified by well-recognized entities such as meningitis and bacterial endocarditis. Its possible role in producing disease of the respiratory tract is less well defined, and in view of its normal habitat it is surprising that it is not more often encountered as the sole pathogenic agent. One of the difficulties may be due to failure to distinguish between pathogenic and non-pathogenic strains, and between primary and secondary invaders. Pittman (1931) has, however, demonstrated that pathogenic strains are usually capsulated and that the capsules have a specific soluble antigen which renders them capable of differentiation into 6 serological types (A to F). The majority of strains isolated from "influenzal" meningitis are Type B, and Sinclair has shown that the strains recovered from cases of laryngitis with septicaemia also belong to this type. The latter author collected 10 such cases, 8 of them in 18 months, and suggests that the number is increasing.

The clinical picture of severe prostration and acute respiratory distress of abrupt onset, often necessitating tracheotomy, differs from that of laryngeal diphtheria in that the prostration is undiminished by tracheotomy or anti-diphtheritic serum therapy. The disease may run a rapidly fatal course in from 18 hours up to 6 days. Four of Sinclair's 10 patients died, those who recovered having received sulphanilamide, sulphapyridine, or sulphathiazole.

The diagnosis is essentially a bacteriological one, depending on the isolation of *H. influenzae* by culture from the nasopharynx, larynx, lung, or blood, or by direct typing of nasopharyngeal mucus obtained by swabbing with type-specific serum—the Neufeld technique used by Alexander, Craig, Shirley, and Ellis (1941). Since typing sera are not yet available in this country, diagnosis largely depends on isolation by culture; but uncertainty will arise unless serological typing confirms the strain—otherwise the diagnosis can only be presumptive.

The present case affords an opportunity of discussing the pathology. The organism was first isolated from the throat on the third day of the disease and from the larynx on the fourth, where it had probably been present from the onset of respiratory distress. Evidence of pulmonary disease was first detected on the fifth day, and necropsy proved it to be due to empyema, no inflammatory condition of the lung parenchyma having been found. Post-mortem blood culture was also positive, and judging from 7 of Sinclair's cases in which the organism was recovered from the blood ante mortem, the blood in the present case was probably invaded in the early stages, thus emphasizing the highly invasive property of this particular strain of *H. influenzae*—not unexpected in view of its possessing a capsule analogous to that of type-specific pneumococci. The route taken by the organism was probably the lung—a probability that is suggested by the bilateral empyemata and pericarditis, in which the exudate in both the pleurae and the pericardium was too abundant to have formed as a terminal event secondary to the septicaemia. The absence of any inflammatory disease of the upper respiratory tract at necropsy shows that the initial lesion may resolve and that the fatal outcome in those cases which survive the first few days is due to purulent inflammation of the lungs, pleurae, or pericardium, and septicaemia, or, when the former are absent, to septicaemia alone.

Summary and Conclusion

A case of acute laryngitis and septicaemia due to *H. influenzae* is described.

The strain of haemophilus isolated from the larynx and blood belongs to the well-recognized pathogenic Type B (Pittman).

The diagnosis depends on isolation of the organism from the nasopharynx and blood, employing a suitable medium such as boiled blood agar or by direct typing of nasopharyngeal mucus when typing sera are available.

The pathology of the condition is discussed briefly.

I am grateful to Mr. W. H. Clark, who was responsible for isolating the organism and for its typing.

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ATYPICAL ASPHYXIAL DEATHS

BY

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The remarks of Dr. Eric Gardner in his paper to the Medico-Legal Society described in the *Journal* of April 18, 1942 (p. 502), under "Mechanism of Certain Sudden Deaths," are timely not only from the point of view of correct inquest findings but also in instituting prompt skilful treatment if there is still a chance of life. Dr. Gardner's remarks have been read by the staff of this mental hospital with considerable interest and with a certain degree of relief. Within the past two months it has been my unfortunate lot to have lost three female patients through asphyxiation. The superintendent tells me that within his eleven years' experience here he cannot recall any deaths with similar surrounding clinical and post-mortem evidence.

Case Reports

Case 1.—A woman aged 36 fell on a tiled floor. She was rendered unconscious and was treated for a fractured skull. She regained consciousness within 4 hours, improving rapidly, and was left by the nurse in charge for a few minutes while she attended to duties in the day-room. On her return the patient was dead. It being thought that this sudden catastrophe was inconsistent with the intracranial injury, a necropsy was performed, revealing that the pharynx contained a huge mass of bread impacted above the epiglottis. The bronchial tubes and lungs also contained pieces of inhaled bread. The base of the skull was fractured, but without sufficient trauma or haemorrhage to cause sudden death. The bread could have been given to the patient only by some of her well-meaning friends.

Case 2.—A woman aged 44. This patient, at the breakfast table, devoured her own share of bread-and-butter and, while standing up and about to snatch that of her neighbour, was seen by the nursing staff to slump down into her seat and collapse. Attempts to recover foreign matter from the mouth were unsuccessful, and she died within 5 minutes. The necropsy revealed bread tightly packed in the pharynx, trachea, and bronchi.

Case 3.—A woman aged 65 was noticed by the nursing staff to turn pale and collapse in her seat while eating bread at the breakfast table. Her air-passages were cleared so far as was possible, but she died within 7 minutes. The post-mortem examination revealed soft bread scattered throughout the larynx, trachea, and bronchial tree.

Commentary

The victims were female patients of a mental hospital, and in Cases 2 and 3 were known to be food-snatchers who, not being content with their own ration of bread, would grab at their neighbours' and cram it into the mouth without mastication. The usual signs of choking were absent in the two observed cases: no lividity, cyanosis, coughing, struggling for breath, or convulsive movements.

A feature common to all three cases was a pallid, peaceful facies. The external post-mortem signs of asphyxiation, such as livid patches on the body and extremities, were absent.

The absence of the normal reflexes, through the medulla, of coughing or retching is remarkable in the light of the pathological findings of impaction in the region of the most sensitive receptors for producing them—viz., the larynx, bronchi, and trachea. Considered with the time factor of 5 and 7 minutes in the two observed cases, it is clear that the mode of death could not have been true asphyxia.

Death appears to have been due to syncope set up by shock—the result of a mass reflex through the impaction of foreign matter in the pharynx, larynx, trachea, and bronchial tree, death taking place before the usual signs and symptoms of asphyxiation had become manifest.

I am indebted to Dr. D. N. Parfitt, medical superintendent, for permission to record these cases, to Dr. J. L. Berry for the post-mortem examinations, and to both for their encouragement in my presentation of this paper.

Medical Memoranda

Treatment of Poliomyelitis with Convalescent Serum and Sulphapyridine

The following two cases of poliomyelitis in the same family are an interesting contrast. In Case 2 the diagnosis could be made with certainty although there was no paralysis, and treatment with convalescent serum and sulphapyridine was given within 48 hours of the onset.

CASE REPORTS

Case 1.—M. W., the youngest of a family of 4 children, was taken ill on Oct. 4, 1941, and was admitted to hospital on Oct. 8, when he presented the following signs: Temperature 101.2°, pulse rate 126; he was conscious and intelligent, but drowsy; his pupils were dilated; there was marked neck rigidity; Kernig's sign was positive; abdominal reflexes and knee-jerks were absent. Lumbar puncture gave a clear colourless fluid, which showed: protein, 0.23%; globulin, *nil*; sugar, greatly diminished, not sufficient to estimate; chlorides, not sufficient to estimate; cells, nearly all lymphocytes, 134 per c.mm. On Oct. 9, 5 days after the onset of symptoms, he developed flaccid paralysis of both arms and legs and became slightly cyanosed, respiration being mainly diaphragmatic. By Oct. 13 paralysis of his respiratory muscles was so extensive that it became necessary to nurse him in a Booth respirator. In this he remained until Oct. 17, when his intercostal muscles had sufficiently recovered to allow of his removal. Since then there has been some improvement, and at the end of April, 1942, his general health was excellent. He had almost complete paralysis of the muscles of his back, left arm, and right leg, some useful movement of his right arm and left leg, and almost complete recovery in his intercostal muscles. There could be no doubt as to the nature and severity of this illness.

Case 2.—P. W., aged 13, brother of Case 1, complained of pain in his back and headache on Oct. 10 (a week after the onset of his brother's illness). He was admitted to hospital on Oct. 11. On admission his temperature was 102°, pulse 130, and respirations 30. His fauces, heart, and lungs were normal. There was slight neck rigidity, and Kernig's sign was positive. There was no paresis, and the deep reflexes were present. His abdominal reflexes were absent on the right side. Lumbar puncture yielded a few cubic centimetres of fluid which was not under pressure and on which the pathologist's report was as follows: "Fluid slightly turbid, with large blood-stained clot. Protein, 0.30%; sugar diminished; Nonne-Apelt reaction, globulin+; chlorides, 0.75%; cells, 456 per c.mm., mixed polymorphs and lymphocytes (some cells accounted for by blood); culture, sterile."

The treatment adopted was as follows: In the first 24 hours after admission he received 7.5 g. of sulphapyridine, the first dose being given (intramuscularly) at 6.30 p.m. on Oct. 11. Subsequent doses were given by mouth. The dose in the second period of 24 hours was 6 g., and in the third period 3 g., a total of 16.5 g. On Oct. 12 convalescent serum was available and 20 c.cm. was given intramuscularly at 10.45 a.m. This dose was repeated at 6.45 p.m., and again morning and evening on the 13th, and once on the 14th—a total of 100 c.cm. in five doses. The boy developed no further symptoms. His temperature fell to normal on Oct. 14 and showed no subsequent rise. There was no alteration in his physical signs except that on Oct. 13 the abdominal reflexes were absent on both sides. They were not obtained until Oct. 17. He was discharged on Nov. 9 and has remained in good health since.

COMMENT

The fact that no paralysis developed in Case 2 would appear to justify a more extended trial of convalescent serum and sulphapyridine, particularly in cases like this in which the diagnosis can be made with certainty before the onset of any paralysis. It is fully realized that the fact that no paralysis developed in the second case may have been a coincidence.

I am indebted to Dr. L. B. Cole for his help in the diagnosis of Case 1 and his suggestion that the combined treatment should be used if further cases occurred; and to Dr. Sinclair Miller for very promptly supplying 100 c.cm. of convalescent serum with instructions as to dosage.

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Reviews

POSTGRADUATE LECTURES

Edinburgh Postgraduate Lectures in Medicine. Volume II. 1940-1. (Pp. 540. 12s. 6d.) Edinburgh and London: Published for the Honyman Gillespie Trust by Oliver and Boyd. 1942.

The Honyman Gillespie Trust is to be congratulated on producing a second volume of postgraduate lectures in these difficult times. Physical examination should begin with inspection, unwilling though the student is to realize that fact, so Mr. F. E. Jardine's lecture on the subject is appropriate. Since it is mainly surgical in outlook we would commend the executive committee to secure an equally interesting contribution from the medical side, for the patient who has the disease is as important as the disease he has. Just as medical examination should begin with inspection so medical theory must be largely rooted in genetics. Prof. Crew's lecture on genetics in relation to reconstructive medicine is therefore of particular value, coming from an authority in genetics who has, however, no exaggerated ideas on the advantages of artificially controlled propagation, since, as he says, most derangements and defects of genetic origin behave as recessives. He anticipates more results from improving the environment, though aware that improvements in social conditions will not in themselves yield unlimited evolutionary progress. The whole lecture repays thoughtful study. Of topical interest is Prof. D. K. Henderson's lecture on the significance of fear, which links up with Prof. F. R. Fraser's study of the so-called effort syndrome. This he regards as a disorder of the involuntary nervous system which also occurs in civil life but is given almost specific characters under conditions of war. Since 1914 the mental features have been realized and accepted, so that we may now anticipate better results from more discerning treatment. Prof. Stanley Davidson contributes a helpful article on recent developments of diagnostic sternal puncture, while Dr. C. P. Stewart takes a cautious view of the relationship between dark adaptation and vitamin A, holding that other factors such as age, fatigue, minor infections, and indeed other vitamins also play a part. The recent increase in pulmonary tuberculosis lends point to Dr. Charles Cameron's account of modern methods in its treatment. He does not believe the failure in early diagnosis is so often due to carelessness or ignorance as is often suggested, but rather to the fact that some cases are symptomless in the early stages, while others are so acute in onset that much damage is wrought in a comparatively short time. Nature at the best holds a fine balance, and he quotes the depressing dictum that "60% of all adult pulmonary cases die within five years of coming to our notice." Clearly more active measures are called for.

Naturally a considerable proportion of the lectures deal with medical and surgical problems arising from the war, to which we have devoted a considerable amount of space in these columns. An attractive series is brought to a conclusion by a suggestive if rather discursive paper by Prof. McDowall on the physiological approach to medical problems.

EVOLUTION OF SURGICAL INSTRUMENTS

The History and Evolution of Surgical Instruments. By C. J. S. Thompson. (Pp. 113. No price given.) New York: Schuman's, Twenty East Seventieth Street.

Now that so many of the original instruments with which this book deals have been destroyed by enemy bombing, it is as well that a concise account of them should be available in a single volume such as this, even though a good deal of the matter of the book has already appeared as articles in the *British Journal of Surgery*. As Dr. Chauncey D. Leake, who introduces it, tells us, this historical survey can never supplant the instruments themselves, but it may serve to perpetuate the purpose of the collection. It forms an interesting addition to the instrument catalogue of the Museum of the Royal College of Surgeons of England, copies of which fortunately still exist. The book, which is amply illustrated and beautifully produced consists of twelve chapters, of which "The Scalpel,"

"The Trepan," "Head Saws," and "Tourniquets" may be selected as samples. Possibly those on "Tourniquets" and "Trocars," respectively, are two of the most interesting. It is regrettable that there are many omissions and some inaccuracies. Sir Victor Horsley at one stage of his career may have used the Walsham trephine depicted on p. 44, but he designed and used the well-known truncated cone type of instrument, still used on occasions to-day, which is not shown in this book and might well have been included. Ambroise Paré's "skull compass" is the prototype of Souttar's and Trumble's craniotomes which are not, however, mentioned, and which, if illustrated, would form with it an interesting comparison of more recent instruments. There is no reference to the power-driven skull saws of Doyen and Van Arsdale, and it is quite inaccurate to describe, in the chapter on the trepan, Lambert Rogers's modern electrically driven craniotome—the skull plough—as a reversion to primitive times. Any reference to this instrument, which has no counterpart among trepans, should be in the chapter on head saws, since it is in essence an electrically driven bone saw capable of controlled movement in two planes. The very widely used Gigli wire saw is not mentioned, nor is there any reference to what so far as we know is the only really complete account of this subject of skull saws, viz., "The history of craniotomy, an account of the methods which have been practised and the instruments used for opening the human skull during life" (*Annals of Medical History* (1930), p. 495).

A bibliography is not included, references are conspicuously few (the important monograph of J. S. Milne on *Surgical Instruments in Greek and Roman Times* is not mentioned), and mistakes of printing occur in both text and index. Murrett-Baker (pp. 68 and 70), is surely Morrant Baker, and Roger (p. 112), Rogers. A final chapter on operating tables concludes with illustrations of a British table of 1885 and a French one of 1914. Although, so far as it goes, this is an interesting account, we cannot but regard it as somewhat superficial, and would welcome a further elaborated edition in which references and bibliography are included and attention is paid to some of the points here raised.

HISTOLOGY AND EMBRYOLOGY

Histology and Embryology. By José F. Nonidez, Sc.D. Oxford Medical Outline Series. (Pp. 199. 12s. 6d.) London: Oxford University Press.

This book, by Prof. Nonidez, is described by the author as an "outline which presents in condensed form the most important facts concerning the structure and development of the organs of the human body," and as "intended to be used as a supplement to a textbook." Like other books of a similar nature, this work appears to have been written with the purpose of supplying the want which is felt by many students of a reliable guide to the essentials of a subject which will save them both time and expense. There is, however, a very real danger that such books may supplant rather than supplement well-illustrated standard works which have been gradually perfected during many successive years. Elementary books without illustrations, and consisting of verbal descriptions only, leave a great deal to the imagination of the reader, who—especially in subjects like histology and embryology—requires clear-cut and accurate illustrations to assist him in interpreting the appearances he sees under the microscope. The work which we are now considering is clearly written, information being imparted by short definitions which are admirable from a didactic standpoint. One would like, however, to have seen greater attention paid to the relations of structure to function, and also greater detail given to the description of the development of those parts which have a practical bearing on medical work—e.g., in connexion with the occurrence of abortion, chorion epithelioma, hare-lip and cleft palate, hypospadias or spina bifida, and in general the effects of malnutrition or disease on the early stages of a normally developing embryo. The student who studies the structure of the skin or other part with the view of understanding the relation of this to its normal functions, and has a good mental picture of that structure, will be quite independent of didactic aids to his memory, and more especially so if his attention has been directed to the bearing that this has upon ordinary medical practice.

ABNORMALITIES IN BACKWARD CHILDREN

Developmental Aphasia in Educationally Retarded Children. By M. MacMeeken, M.A., Ph.D. (Pp. 95. 3s.) University of London Press, Ltd., St. Hugh's School, Bickley, Kent.

It is a matter of common observation that retardation of learning in school is by no means always associated with general mental deficiency—i.e., with general lack of capacity for intelligent development. The existence of congenital word blindness due to lack of development of certain specified areas of the brain as suggested by Hollinshed has been hotly disputed, but that specific reading and spelling disabilities are not uncommonly met with among elementary school children is the experience of every teacher. Dr. MacMeeken has investigated 140 children on the "retarded list," 84 boys and 56 girls from a background of 1,487 children. He found that a large proportion of these owed their retardation to factors other than low capacity, and that this is especially true of boys. He found that 58.6% of this group were "left eyed" and that the proportion of boys was again high. Squint and left-handedness also seemed to be significantly associated with retardation, and a previous investigation showed that these were associated with an aphasic confusional error.

The determining cause of laterality is little understood, but abnormality of foetal posture has been suggested, and left laterality does seem to be associated with twinning. The point is that studies of induced nystagmus show that left-eyedness means a preference for scanning from right to left, whereas written language requires a scanning from left to right—an obvious cause of aphasic confusion which may well induce a retardation of reading and spelling.

This well-documented essay will be of great value to all who are interested in the relation of developmental abnormalities to intellectual and learning capacity, a subject which concerns the medical as much as it does the teaching profession.

Notes on Books

The official *Medical Register* for 1942 has been published on behalf of the General Medical Council by Constable and Co. (Orange Street, W.C.2) at 21s., post free 22s. The table printed in the introductory section shows that 3,293 names were added last year. New registrations numbered 1,189 in England, 632 in Scotland, 285 in Ireland, 134 on the colonial register, and 1,053 on the foreign register. The total number of names on the *Register* at the end of last year was 66,995, being 2,316 more than on December 31, 1940. The number of names removed from the *Register* during 1941 was 993; of these 985 were deleted on evidence of death, and 8 were struck off under the disciplinary powers conferred by Parliament on the General Medical Council.

Prof. JOHN READ of the University of St. Andrews has written an entertaining little book for popular reading on *Explosives* (Harmondsworth, Penguin Books Ltd., 9d.). He describes the chemical nature of explosive phenomena, the various uses which different explosives serve, the method of their production, and gives some account of the quantities in use. It is full of information relating to their specific characters, which vary greatly in sensitivity to shock and other conditions, and describes how each of the different characters is turned to advantageous use. It is interesting to observe some unexpected methods of producing explosives for application to special purposes, such as a mixture of liquid oxygen with finely powdered carbon or carbonaceous matter, and to note that practical use is made of liquid carbon dioxide alone, inert though it is, as an explosive.

Modern Treatment in General Practice Yearbook, 1942, is the eighth annual volume of papers on therapeutics reprinted from the *Medical Press and Circular*. It is published at 12s. 6d. from the office of Baillière, Tindall and Cox, and the editor, Surgeon Rear-Admiral CECIL P. G. WAKELEY, contributes a brief preface. A wide range of subjects is covered, and there are fourteen articles grouped together under the general heading "War Medicine and Surgery."

A seventeenth edition of *Black's Medical Dictionary*, which was edited for many years by the late Dr. J. D. COMRIE, has been published by A. and C. Black at 21s. The main text consists of over 1,000 pages printed in double columns, and there is a brief supplement on the management and treatment of casualties resulting from air raids.

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THE MEDICAL CURRICULUM

The final examinations are over. The successful candidates have a brief six months to adapt themselves to a world whose ideals and demands will prove very different from those of the medical schools in which they were trained. It will not be long before director-generals, scientific advisers, and politicians begin to pass adverse comment on their want of *savoir faire,* their ignorance of nutrition, and their lack of insight into the problems of industrial welfare. The bizarre group of patients with physical signs, who have been with such difficulty collected for the great occasion, have returned to the infirmaries and sanatoria which permanently house them or passed on to that bourne from which no traveller returns. The hospitals breathe a sigh of relief and get on with the treatment of their normal clientele, which, rather surprisingly, seems to be in large measure unsuited to the purposes of a final clinical examination. But no such respite is allowed to the examiners, who must now busy themselves with the revision of the medical curriculum, a problem to which many of them have devoted unrewarded hours in the past. The recrudescence of interest in medical education is in part due to a general stimulation by the ultra-violet light of war; in part to the anxiety felt by the universities about the deterioration threatened by the dispersion of medical schools and the loss of teachers, especially in clinical subjects; and in part, and perhaps most urgently, to the knowledge that an Interdepartmental Committee on Medical Schools is now in action. As this committee is to inquire into the organization of medical schools, with particular reference to facilities for clinical teaching and research, the result of present discussions is likely to be concrete and far-reaching. A little probing at the roots of the matter may therefore not be out of season.

At least three important committees considered the medical curriculum in the decade before this war, and their issue was stillborn. They did not succeed in adapting the curriculum to the inflow of new knowledge or in shifting the emphasis from the study of disease to the prevention of illness. It is important to inquire why this was so. Let it be said quite bluntly, for we are sadder and wiser now than we were then, that we did not apply science, or at any rate the appropriate science, to our task. The committees of the General Medical Council and of the Combined Universities were entirely composed of medical teachers. The committee of the British Medical Association contained general practitioners, and conferred with the teaching profession. Methods of teaching of students and selection of teachers in the medical schools still have the features of a primitive craft which has grown up in a haphazard way and which calls for scientific analysis and re-integration. Education is a science which has a theory, a discipline, and great recent advances. No one with eyes to see can fail to be impressed by the help which educationists and psychologists have given to our rapidly expanding Defence Services in schemes of pre-selection and training. The speed of acquisition of industrial skill as a result of methods introduced during the war has been no less remarkable. No revision of the medical curriculum can afford to neglect this revolution or fail to ask expert help from outside. To do so would be to run counter to one of the main principles for which we ourselves stand as a profession of technical experts. *Experto crede.*

Next we must decide what is the principal aim of medical education. Surely it is the production of good general practitioners. The exceptional man who is likely to become a consultant or researcher can—up to a point—look after himself, and in any event he should not bias the curriculum. Not long ago, in reviewing Alan Gregg's *Furtherance of Medical Research,* we commented on the widening gulf between medical research and medical practice. The staff of the Medical Research Council's institute is now predominantly non-medical. The recent appointment of a distinguished non-medical biochemist, Prof. C. R. Harington, as its head, won universal approval. Medical education cannot legislate for the researcher as well as the general practitioner; it must fit its courses for the latter. It seems, therefore, that we must work back from the medical practitioner: we must find out what knowledge and bodily skills he requires. This information can only be obtained by field surveys, carried out by groups including medical and non-medical workers, to discover what the practitioner is now doing and what he ought to be doing. These surveys will be coloured by the knowledge that the future practitioner will almost certainly have to undergo a period of compulsory house appointments before registration of his qualification, and a period as assistant at a health centre or in a practice before he is allowed to work entirely on his own.

When the information about the appropriate mental and technical equipment of the practitioner of to-day and to-morrow has been collected the educationists must help us in devising the best way of teaching it. The scholastic life of the medical student falls into three divisions—school education, pre-clinical education, clinical education—and between the first and second there may perhaps be interposed a period of national service. It will again pay us to work backwards. Our plans must bear in mind that the cost of the student's education will be borne to an increasing degree by the State and must bear a reasonable ratio to the service provided afterwards. It is undesirable that young men and women should remain *in statu pupillari* after the age of 23 or 24 unless we are deliberately aiming at breeding out our best stocks. Many of them are marrying at that age to-day.

Clinical education might be carried out in three distinct ways: the old-fashioned apprentice training of "walking the hospitals," which has continued with little change up till to-day; the fundamental scientific or physiological approach for which many teachers hanker; and the synthetic type of training which has proved so valuable in the Services and which depends on discovering what the pupil has to learn and then working out the most efficient way of teaching it. It seems *a priori* unlikely that it will be found that the present routine of medical and surgical ward clerkships, or the present teaching by men who are chosen for their professional skill, and who have a duty to get round the ward, to perform their operations, or to examine their out-patients, is the best that can be devised or afforded. It is also clear that life is too short for the medical student to learn everything from the fundamental or scientific standpoint, and it seems probable that he will have to get his scientific education and background in his pre-clinical years and devote the clinical years to the acquisition of technical skills. We must probably look forward to a much greater extension, under whole-time teachers, of what are now known as preliminary medicine and surgery, and a much more intimate fusion of clinical teaching, pharmacology, pathology, and radiology. There is need here for a survey of more modern teaching methods, such as the combined demonstrations of clinical, pathological, and radiological material which have been prepared at some of the Scottish universities or the lay-out

of our new museums. Training Command of the R.A.F. is almost too gadget-minded and not always appreciative of the difficulty of transference of skill from the artificial to the real, but it has shown what can be done with the film, the sound-track, and the model or "mock-up," and suggests possibilities in medical education. Developments of this kind will greatly affect the physical structure and cost of medical schools and the type and training of teachers, and are very germane to the evidence to be presented to the Interdepartmental Committee.

School education and the pre-clinical education of the medical student must be planned in association with the general education of the young people of Britain and not as an isolated medical problem. Here, too, we are in danger of getting out of touch with the extensive study of general educational problems which the war has stimulated. As regards pre-clinical training, it is not clear why the anatomy and physiology of the body should leave so little time for the study of the mind. The reasons must lie in the historical development of the medical schools and not in a true appreciation of the needs and possibilities of medical education to-day. The pre-clinical years are likely to become the backbone of the doctor's education as a scientist, and no time or care should be spared in their planning.

New efforts to reform the curriculum will be as abortive as the old if planners think in terms of the claims of rival teachers, the clash of personalities, and peace by compromise. Neither in the pre-clinical nor in the clinical course can we keep the curriculum up to date and of reasonable length by the processes of addition and subtraction. We require new permutations and combinations. The present century has seen revolutionary changes in methods of diagnosis and treatment, in understanding of the psychological causes of illness, and in the prevention of organic and functional disease; and only fundamental changes in the curriculum and the methods and scope of medical teaching can keep pace with them.

FOUR YEARS OF HERBERT'S ACT

In piloting through Parliament so radical a reform of the divorce law as the Matrimonial Causes Act, 1937, Mr. A. P. Herbert achieved a very remarkable success. He succeeded largely by concentrating on a few basic principles and not inviting controversy over many minor details, desirable though these might have appeared. The Act has now been administered for about four years, and few will maintain that it has not on balance been very beneficial. That it should have shown a good many rough edges is inevitable, for under the conditions of its passage through Parliament the persons who could conceivably have moulded it to fit the pre-existing law did not have much opportunity of doing so. A survey recently presented to the Medico-Legal Society by Mr. William Latey and Mr. D. Harcourt Kitchin, barristers-at-law, showed that it fits much better on to the earlier law of divorce than on to the law of mental disorder, with which it is intimately connected through its provisions for divorce and nullity on the ground of insanity in a party to the marriage. As these authors pointed out, the number of cases in which the insanity ground is raised is small—only about a hundred and fifty a year out of seven thousand. Petitions on the ground of desertion are much more numerous. In matters of justice, however, numbers do not matter; if a statutory provision oppresses a few, it needs amendment just as urgently as if it oppressed many, and in some respects Herbert's Act calls loudly for amendment.

A petition for divorce on the ground of insanity may be presented by either spouse on the ground that the other is incurably of unsound mind and has been continuously under care and treatment for at least five years immediately before the date of the petition. "Care and treatment" is very precisely defined, in terms that sound strange to a medical ear. A person is deemed to be under care and treatment while he is detained in pursuance of any order or inquisition under the Lunacy and Mental Treatment Acts, 1890-1930; or of any order or warrant under the Acts relating to the fighting Services; or while he is being detained as a criminal lunatic or in pursuance of an order made under the Criminal Lunatics Act, 1884; or while he is receiving treatment as a voluntary patient under the Mental Treatment Act, 1930, "being treatment which follows without any interval a period of such detention as aforesaid." To make it quite clear that those cases mark the limits of "care and treatment," the section concludes "and not otherwise." Not every permanently insane spouse, therefore, comes within the Act. For instance, the section says nothing about temporary treatment under sect. 5 of the 1930 Act, by which a patient who is incapable of volition but likely soon to recover may be admitted to a mental hospital without a reception order for six months. After that time his temporary treatment may be continued for two more periods each of three months "as may be specified in directions given by the Board of Control." If, therefore, a patient is admitted to a mental hospital on the temporary footing, recovers volition within six months, and remains as a voluntary patient for another five years or more, then even if he is incurable he cannot apparently be divorced under Herbert's Act, for the voluntary treatment does not follow a period of detention under an order, inquisition, or warrant "as aforesaid." It only follows a period of temporary treatment, which, though by the Mental Treatment Act it is called detention, yet is not detention under an order. Nevertheless, if a temporary patient remains without volition for six months and then has his period of treatment extended by directions of the Board, these directions count as an order (Benson *v.* Benson, 1941); and any subsequent period of voluntary treatment is good for divorce purposes. This anomaly badly needs adjustment. So, too, if an otherwise valid period of voluntary treatment is interrupted by a period of temporary treatment, it is probably vitiated for divorce purposes because the temporary treatment, for the first six months at any rate, is not detention under an order. Again, an English patient who happens to be detained in a Scottish mental hospital does not come within Herbert's Act, just as a Scottish patient detained in an English hospital does not come within the corresponding Scottish Act. Other cases in which the care and treatment may be legally interrupted, though the insanity which is the real ground for the divorce subsists, are those in which the patient is let out for a substantial period on trial or holiday, or is discharged to relatives, or escapes for longer than the fortnight within which he may be retaken on the original reception order. The President said in Shipman *v.* Shipman (1938) that routine outings in the daytime or short leave of absence may not interrupt the detention, but that absence on trial for prolonged and indefinite periods may do so: in each case the court must decide whether an invisible line has been transgressed or not. The statutory care and treatment may also be interrupted by a purely technical mistake, such as the failure of a workhouse officer to give the certificate of suitable accommodation required by sect. 25 of the Lunacy Act, 1890, on the transfer of an incurable rate-aided patient (Murray *v.* Murray, 1940). There is no provision in Herbert's Act for divorce on the ground of mental deficiency for which a spouse is indefinitely detained in an institution.

Another legal anomaly under the Act has been introduced by an unfortunate decision of the Court of Appeal. Insanity, besides being a ground for divorce, may be a defence against a petition for divorce alleging desertion or cruelty, for if the respondent is insane he may not be responsible at law for these offences. In Williams *v.* Williams (1939) the court held that, because the respondent husband had been certified as of unsound mind, his wife could not divorce him for desertion although he had deserted her many years before his certification. Once a respondent loses through insanity his ability to form an intention to desert or to return, he no longer commits the matrimonial offence of desertion, for he has no longer the *animus deserendi* which is indispensable to the offence. Moreover, and even less justifiably, if the respondent is certified under the Lunacy Act his irresponsibility is presumed, and the petitioner is not allowed to bring evidence of his actual state of mind. A certified patient may be charged with murder, and then evidence of his state of mind is heard; he may be sued for causing damage to property, and the aggrieved person is at liberty to bring evidence showing that he was responsible; during a lucid interval he may make a valid will. In desertion alone is he presumed on the strength of the certificate to be irresponsible. This decision should be reversed by statute as soon as possible, for, apart from the hardship it may cause, it distorts the pattern of the law governing responsibility.

No amending Bill can come before Parliament until the war is over and controversial private Members' legislation can again be introduced. No doubt, however, Mr. Herbert and others will take the first opportunity of seeking to remove these and other incidental defects of an Act which on the whole has fulfilled its purpose admirably.

THE ADRENALS IN ANOXIA AND IN SHOCK

Judging from the large variety of subjective and objective symptoms observed in anoxia, it is probable that all the active systems of the body are adversely affected. Attempts have been made from time to time to attribute the main trouble to damage of one particular organ, and in this respect the adrenal gland is at the moment receiving a good deal of attention from research workers. R. A. Lewis and his co-workers[1] exposed rats, rabbits, dogs, monkeys, and human subjects for single periods of 1½ to 24 hours to mixtures of oxygen and nitrogen with the partial pressure of oxygen adjusted to correspond to altitudes of 11,000 to 34,000 feet. Their conclusion from the animal experiments is that the "carbohydrate-regulating" factor of the adrenal cortex is closely concerned with the changes in the organism during anoxia, and that it enables adrenalectomized animals to withstand exposure to an otherwise fatal oxygen tension and results in an increase in blood glucose, liver glycogen, and excretion of nitrogen. The increased excretion of potassium during anoxia appears to be accounted for by factors other than the adrenal cortex, whereas the increased excretion of sodium and chloride appears to be mediated by the "carbohydrate-regulating" factor of the cortex. Lewis and his colleagues' eight human subjects were exposed in bed in an oxygen tent to an oxygen tension of 98 mm. Hg, corresponding to an altitude of 13,000 feet, for 5 hours only. This did not cause any striking change in various blood and urinary constituents, although there was a fall in excretion of urinary nitrogen, and in one or more of them there were the following signs and symptoms: hyperventilation, tachycardia, cyanosis, frontal headache, mental exhilaration, general weakness, fall in blood pressure, syncope, precordial discomfort, nausea, and vomiting. The two subjects who lost consciousness remarked that they had similar reactions on motor-car or boat trips. The administration of intravenous glucose to four of the subjects was not associated with improvement in subjective symptoms. Also, the electrocardiographic changes during anoxia were not restored to normal by glucose, although the authors state they have evidence that changes in the electrocardiogram may be associated with abnormalities of carbohydrate metabolism.

Much research work is also being carried out in connexion with the part played by the adrenal and its carbohydrate-regulating factor in shock. H. Selye and C. Dosne[2] find that the venous blood coming from a damaged area is always much poorer in glucose than is the venous blood of a non-traumatized area in the same animal, although, usually, the systemic blood sugar is very high in traumatic shock. In adrenalectomized rats, whose resistance is low, traumatic shock is not accompanied by a rise in the systemic blood sugar, and, indeed, often causes hypoglycaemia. Active cortical hormone preparations restore to normal the low blood sugar of non-traumatized animals subjected to adrenalectomy, but do not raise it about this level, nor do they cause hyperglycaemia in intact animals. On the other hand, if such extracts are administered during traumatic shock to adrenalectomized rats, they cause a significant rise in the blood-sugar concentration, and at the same time increase resistance to shock. It appears that the metabolic changes elicited by extensive damage alter the action of adrenal cortical hormones on blood sugar. It is possible that in shock the blood sugar decreases in the absence of the adrenals because the lactic acid produced fails to be resynthesized into glucose. In any event it seems that changes in carbohydrate metabolism play an important part in the pathogenesis of the shock syndrome.

Other workers have been investigating the possible therapeutic action of cortical hormones in shock. There are a number of reports that "cortin" and corticosterone are of some benefit in treatment or prevention of this condition. Desoxycorticosterone appears to be of some value in "muscle shock," but not when the shock is due to damage to viscera. Recently R. L. Noble and J. B. Collip[3] introduced a method of producing shock in rats which they consider excludes the complication of haemorrhage in addition to those of infection and anaesthesia. The animals are placed in a revolving drum and raised up to a short distance and then dropped. This is repeated many times, and eventually this type of trauma leads to haemoconcentration and the pathological changes ascribed to shock. Noble and Collip conclude that a poison or toxin is formed in the damaged tissues, muscles, and viscera, and that there are two possible types of cases. First, there is the case in which, as the result of rapid formation of large quantities of the toxic substance, death follows trauma very rapidly without much haemoconcentration. Secondly, there is the case which runs a protracted course with increasing haemoconcentration due to loss of plasma through the capillaries. In their animal experiments Noble and Collip found that the mortality was mainly toxic in nature, and they attempted to prevent the condition by pre-treatment with various cortical extracts from the adrenal gland. They got some evidence of therapeutic effect, but nevertheless conclude that from the practical standpoint the effects of adrenal preparations on this type of shock are disappointing; but they have stimulated further research. At the same time, no doubt, the difficulty is that other organs are concerned in the mechanisms not only of shock but also of the anoxia which usually accompanies shock.

[1] *J. clin. Invest.*, 1942, **21**, 33.

[2] *Proc. Soc. exp. Biol. Med.*, 1941, **48**, 143, 532.

[3] *Q. art. J. exp. Physiol.*, 1942, **31**, 187, 201.

SULPHANILAMIDE IN ACUTE NEPHRITIS

The close relation of acute nephritis to infections with the haemolytic streptococcus has been recognized for many years, and it is therefore tempting to suppose that drugs of the sulphanilamide series might have a beneficial action on the course of the nephritic process. With a view to testing this hypothesis Williams, Longcope, and Janeway[1] have lately compared the results in 42 cases of acute nephritis treated with sulphanilamide during the acute phase of the disease with a series of 70 cases not so treated compiled from their previous records. Sulphanilamide has been shown to be relatively harmless to the normal kidney, and has not produced the haematuria and anuria occasionally noted during treatment with sulphapyridine or sulphathiazole, but the authors state that in the presence of even slight renal deficiency the drug is not excreted as rapidly as in the normal subject and so accumulates more rapidly in the blood. The treatment must therefore be used with some caution in nephritis.

Almost all the patients treated had some focus of infection (usually the tonsils) from which beta haemolytic streptococci had been recovered. The control group was picked to represent as nearly as possible a series of cases of equal severity and of the same aetiology. The authors claim that in the treated series the foci of infection cleared up more rapidly, the duration of oedema and hypertension was shorter, and the percentage of clinical recoveries greater. Although this is true for the small number of cases recorded, a critical examination of the work under review shows that the differences in the outcome of the two groups of cases were not striking and may not have been entirely due to the sulphanilamide therapy. For instance, the control group contained a smaller proportion of cases in which oedema and hypertension were absent. Moreover, even the treated groups were subjected to tonsillectomy and other procedures for the surgical removal of septic foci. Dosage was very variable, being in some cases 1.2 g. and in others 6 g. per diem, the total amount of sulphanilamide administered varying from 9 to 169 g. Certain facts, however, seem to be indisputable. The number of cases in which positive throat cultures were obtained at the time of discharge from hospital was decidedly less in the treated group; temporary exacerbation of the nephritis after tonsillectomy was common in the untreated and rare in the treated group; and the renal function was never adversely affected by sulphanilamide, even though it was given during a stage when oedema, hypertension, albuminuria, and nitrogen retention were present. The immunologic reactions of the patients, as shown by the antistreptolysin titre of the blood serum, were unaffected. It seems safe to conclude that, whereas sulphanilamide does not constitute a cure for acute nephritis, it is a relatively safe method of treatment and should be used wherever active streptococcal infection is present, and also before and after the removal of septic foci in these cases.

WHAT THE CHILD THINKS OF SCHOOL MEALS

Doctors and educationists and social workers have given their own opinion of the school canteen and its advantages, but it has been left for the Education Committee of Hertfordshire to elicit what the children themselves think about the experiment. Under the title of "The School Child and the School Canteen" the Hertfordshire County Council has published the results of an inquiry undertaken by Mr. F. Le Gros Clark into the reactions of the children to the change in social habits which the school canteen signifies. The inquiry was carried out through the medium of the school essay, and the first 600 essays to come to hand from 19 schools in the county were analysed. About 31% of the boys and 35% of the girls expressed a preference for meals at school, and 45% of the boys and 41% of the girls for meals at home. The remainder were indifferent or had conflict of choice. Meals at home were preferred by a considerable proportion of the older children—that is, those over 13 years of age. The chief reason given for preferring meals at school was the excellence and variety of the food, but, on the other hand, those who preferred meals at home cited most frequently the insufficiency of school meals. Many of the essays were written by children evacuated from London into Hertfordshire, and it is evident from their essays that some of them concentrated upon the school canteen the resentment of the evacuated person against what he considers to be undue favour shown to the local child. Criticism of school meals, however, was fairly common. Complaint was made not only of insufficiency of food—probably the second helping by the indulgent mother is missed—but of indifferent cooking, overcrowding at tables, and noisiness. It is evident from the essays that so far there has been little imaginative effort to develop among these children a community spirit at their school meals or to deal encouragingly with the shy and nervous among them. Undoubtedly a large number of children now feeding at school—in Hertfordshire about 16,000 children are now fed every school day—do hanker after the greater freedom of the domestic table, the sense of maternal thoughtfulness, and the chance of expressing their likes and dislikes. It seems likely, whatever course the war takes, that the food situation will call for such communal service for some years to come. If so, a generation of children will pass a large part of their school life within the school-meal system. Teachers and others should therefore do what they can to transform the canteen from an improvised method of getting children fed into something which will have a formative influence on their training and be a valuable means of social instruction.

[1] *Amer. J. med. Sci*, 1942, **203**, 157.

SURGEON'S MEDAL FOR LORD NUFFIELD

The medical profession will note with great pleasure that the Royal College of Surgeons has awarded its Honorary Medal to Lord Nuffield "in recognition of his conspicuous service in assisting the improvement of natural knowledge and of the healing art and of the many liberal acts and distinguished labours inspired by the desire to advance the science and practice of medicine and surgery." Lord Nuffield's benefactions have been distinguished not only by their munificence but by clear knowledge of the present needs of medicine and wise foresight of its future problems. Only recently we announced the decision of the Nuffield Provincial Hospitals Trust to create a professorship and to found an Institute of Social Medicine, devoting to this purpose £10,000 a year from its income for the next ten years. There is no need to enumerate in these columns the many other generous contributions Lord Nuffield has made to what we may call his "chosen profession." We may be sure that of the 19 recipients of the College's Medal few have deserved it so well as he.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* have been printed. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

SALVAGED EXPERIENCES

CASES AND COMMENTS FROM GENERAL PRACTICE*

BY

E. DOUGLAS GRANGER, M.D.

Before consigning my bombed and scattered papers to their more useful function of salvage I have extracted a few cases and comments thereon. These random reflections I present to you in the hope that they may give some impression of that pleasant backwater of medicine in which I drift—private practice in a seaside resort.

An Odd Clinical Blunder

A habit of taking notes was initiated by a curious clinical blunder that occurred before I came to Bournemouth. Early in the morning a sailor came to see me complaining of severe abdominal pain and sickness. He was also on the defaulters' list for the day, and was accordingly examined with care and suspicion. No evidence of disease was found, and he was encouraged to return to work. At 3 o'clock on the same afternoon I was in the ward room recovering from lunch when there was an urgent call to the upper deck. There I found the unfortunate sailor stretched out, ghastly white and obviously desperately ill. He had a thready rapid pulse, sunken pain-distorted features, cold clammy skin, shallow respirations, a rigid abdominal wall exquisitely tender. I concluded that I had missed a serious abdominal emergency, and ordered his removal for immediate operation to the hospital ship *China*, some four miles away. As he was being lowered over the side an elderly warrant officer approached me and said that, in his opinion, there was "nothing wrong with Bill's belly, but that he was suffering from the screws." Now, I had been long enough in the Service at that time to treat the many theories of the executive with restraint, and on inquiry I found that a very usual practical joke had been played on him when he was over the side for a slight depth at the bottom of the ship in a diving-suit. He had been blown up, which consists in being brought quickly to the surface, generally upside down—a most uncomfortable sensation. Although I did not believe that such a slight change of pressure could have been in any way responsible for this very serious condition, I reluctantly agreed to stop at the *Cyclops* on my way to the hospital ship. There we were both put in the compression chamber, with the most dramatic results, as Bill the sailor rapidly became sprightly and well, and I felt very poorly indeed. There is no disguising one's intentions in the Navy, as your diagnosis is blazoned in bunting to the entire fleet, so we had to return to the ship, Bill to his work and I to the ribaldry of the ward room.

The interesting point of this case is—first, what would have happened to the man if he had gone straight to the hospital ship; secondly, surely such a shallow diving descent could not possibly produce caisson disease in a normal man; and, in fact, this particular man six weeks later, after carrying out full duty, suddenly reported sick again, and was operated upon for a perforated duodenal ulcer.

Abdominal Surprises

Midwifery constitutes one of the most exacting parts of private practice. The following case did much to scatter my enthusiasm for it.

I was called to a primipara, aged 36, apparently in strong labour. She appeared very emaciated and ill, and although she seemed to be getting regular strong pains I could not feel any uterine contractions. It was a transverse lie. I spent a night trying to do version. The head could be manipulated into the pelvis, but it was no sooner down there than it seemed to pop up with the greatest of ease. After three hours my poor patient suddenly appeared even more collapsed than I was myself, and to my alarm I felt what appeared to be a foot immediately under the skin, and I thought that I must have ruptured the uterus. At a further vaginal examination I did at last succeed in feeling a hard small body, low down in the pelvis and below the child, and it eventually dawned upon me that I was dealing with a full-term ectopic. At the operation two days later the placenta was found to be spread out over the small intestine. A live child was removed, and survived, but attempts to remove the placenta caused the most profuse bleeding. Portions of it were cut away. The remainder was clamped, and an open sloughing wound discharging bits of placenta from the abdominal wound persisted for a couple of months.

Among the cases of abdominal conditions I was surprised how far less frequent the chronic appendix seems to be in recent years, and during the last ten years I have attached importance to the following sign: the sudden removal of the hand after fairly deep pressure in the right iliac fossa, giving a sharp transient pain. If I have been able to get that sign, coupled with *x*-ray evidence of a residue in the appendix twenty-four hours after all bismuth has left the large bowel, I have generally felt satisfied that I shall not have that unpleasant experience of trying to convince myself that the appendix is a little pink and yet having an uncomfortable feeling that the dolorous symptoms, probably due to gut spasm, will resume their appearance. Because there is not much doubt that in these days of tension the spastic bowel can simulate many serious diseases, and a little hyoscyamus with a soft vegetable bulk such as "visibilin" sometimes relieves the most apparently ominous physical signs.

Circulatory Signs in Neurasthenia

Among the most difficult of patients is the advanced chronic neurasthenic. May I recall one case.

It was that of an officer aged 40, with a brilliant war record, whose subsequent retirement brought him great disappointment. He had many complaints, varying from day to day, including numbness of the hands, pains in the limbs, occipital headache, anorexia, constipation, sinking sensations of the epigastrium, apprehension, and constant profound depression. His height was 5 ft. 11 in.; his weight 5 st. 6 lb. The asthenia and emaciation were so extreme that it was difficult to believe that there was not some gross underlying organic disease. Repeated tests and consultations with other colleagues were necessary to exclude this. An interesting sign was constantly present. The pulse at the wrist resembled the pulse of a patient *in extremis*—feeble, thready, almost imperceptible. This was a change in volume and not in pressure. The blood pressure was normal—120 maximum, 94 minimum. In marked contrast with this thready pulse were strong clear heart sounds, without any evidence whatever of heart disease. In a less marked degree I have noticed in other neurasthenic patients this combination of a thready pulse with a normal blood pressure and strong clear heart sounds, and I would submit this as a useful sign in the differential diagnosis of the neurasthenic state. Without doubt it is essential in these people to exclude the presence of any associated chronic factor of disease, such as tuberculosis, diabetes, myxoedema, or any abnormal condition of the blood.

Value of the Blood Count

In fact, apart from the urine test, I believe the blood count to be the most useful single laboratory test in private practice. I have records of two cases in which the only subjective symptom was a painful tongue with no objective symptoms or signs, and in which the blood count disclosed agranulocytosis. Anaemia is especially apt to prove a trap. It is quite possible for a severe anaemia to exist without there being any apparent signs or symptoms, apart from the blood count, and even this may be misleading, as the following case will show.

A lady patient of mine aged 50, always of a nervous temperament, developed pronounced psychogenic symptoms. She was unable to be alone at night, unable to go out alone, could not carry out her ordinary household duties, would not enter a church, was suspicious and almost paranoic concerning her relatives, felt she could not get—as she described it—on top of things, and was convinced she was suffering from some obscure and terrible disease. In order to satisfy her, many investigations were carried out, including a blood count, which was normal. Six months later, at her request, another blood

* A paper read to the Bournemouth Division of the British Medical Association.

count was done, and was normal. A further six months later a blood count was again done, and revealed a typical picture of advanced pernicious anaemia.

This patient belonged to a family that showed a curious blending of blood and glandular dyscrasia. The eldest sister died of bronze diabetes; the second sister, after an operation for an ovarian dermoid, remained apparently well for ten years, and then suddenly died from acute haematemesis. At the necropsy Dr. McNaughtan found an enlarged spleen and scattered areas of necrosis throughout the liver, conforming to appearances due to splenic anaemia. The third sister was the one I described above, who ultimately died of paralysis agitans. One brother died of paralysis agitans and pernicious anaemia. The fourth sister developed signs of myxoedema with complete baldness and great increase of weight, and finally retention and overflow, which was relieved by removing a dermoid of the ovary and a fibroid which was pressing on the neck of the bladder. She also had a spina bifida. The fifth sister has a blood count suggesting aplastic anaemia, makes but little response to liver therapy, is bronzed in colour, and, although her blood pressure is normal, improves in health and is kept going by injections of "eucortone" (suprarenal cortex).

The only progeny of this strange family seems to have gathered all the glandular strength into his own robust body. He is a fighter pilot.

Functional Symptoms with Organic Basis

Fatigability alone may be an organic manifestation. A patient of mine leading a very active public life repeatedly sent for me complaining of one thing only—excessive fatigue. No evidence of disease was detected until I gave her gas for dental extraction. I spent a very unhappy three-quarters of an hour trying to make her breathe again. Within six weeks of this she rapidly developed increasingly advanced signs of myasthenia gravis, with bilateral ptosis, weak flaccid buccal muscles, difficulty in swallowing, and affectation of the speech, and has had to give up her Parliamentary career. I have also yet to convince her that my gas was not the cause of all the trouble.

Symptoms suggesting involvement of the basal ganglia and extrapyramidal system appear to be increasingly common. It seems to me that, in this domain of medicine, functional symptoms can easily have an undetectable organic basis. The usual criteria for differentiating functional from organic disease are not available, and it is common to meet with temporary symptoms of disorder, especially tremor. I have notes of two patients who developed quite violent clonic spasms of the trunk muscles when under any emotional stress. They are well otherwise, and I doubt if they could be classed under any definite organic disease. In this sense they are cases of functional nervous disturbance, and yet I believe they would prove suitable soil for the supervention of organic disease in the event of any great mental or physical stress. A case suggesting this is as follows:

A landlady aged 45 I knew for about ten years as a sensible, industrious, pleasant-natured woman, never ill, and very quiet in her general manner and behaviour. There was no occasion to attend her, but on visiting the house to attend other people I noticed she occasionally had a slight tremor of the trunk muscles and right hand if she was in any sort of worry. After twenty years of hard work she had saved a capital of £200. She then took to backing horses. In three weeks she doubled her capital, and in a further four weeks she had lost her winnings and her capital, and had got slightly into debt. During that period of seven weeks she rapidly developed all the signs of advanced paralysis agitans, from which she still suffers. In her case the reaction to emotion was certainly extreme.

Allied with these mid-brain affections are those curious vasovagal conditions, including Raynaud's. A lady aged 54 who had lived in the Tropics and was subject to curious vascular changes in the legs suggestive of Raynaud's disease suffered from a marked exacerbation of symptoms and violent intractable pain in the foot, which became deep blue in colour. These were followed by a profuse bullous eruption starting on the toes and soles of the feet, and then rapidly appearing over the whole body, the arms, and the face, coming out in successive crops. The bullae were rounded and tense, and were filled with clear fluid. There was a high intermittent temperature varying between 104° and 97°. She suffered intense pain and was desperately ill. Her blood showed a marked eosinophilia. She had become an undoubted case of pemphigus vulgaris.

At this stage, when she was almost suicidal, Dr. Watson Smith saw her, and with his peculiar genius for balanced applications suggested a lotion, which was continually painted on about every three hours. Although a simple thing, it was so remarkable in the immediate relief it gave that I venture to recall it.

Liq. plumbi subacet. fort.	2 drachms
Chalk	6 „
Zinc oxide	6 „
Olive oil and liq. calcis, equal parts	ad 10 oz.

This, plus 1/6 grain of morphine every three hours, was the only treatment she received, and after two months all signs of the rash had completely disappeared, and it has not recurred.

Two Cases and a Moral

Concerning bullous eruptions, a most unpleasant case that I was associated with was that of a certain lady of about 64 who suffered from chronic bronchitis. After being ill for some three weeks she suddenly developed a profuse pustular eruption of the hands, arms, feet, and face, associated with a high temperature, and a doubt arose as to the possibility of smallpox until the fact that she was taking potassium iodide was noticed. When this was stopped she made a gradual recovery, with the exception that she had the sight of her right eye permanently impaired.

A less unfortunate case concerned a middle-aged Jew whom I was asked to see as he had been sent down from London on that day as a case of Mikulicz's disease and had difficulty in breathing. I had never seen anybody so closely resemble in appearance a terrified frog. His eyes were bulging, his face was slightly cyanosed, and he had a huge, brawny, tough, oedematous, apron-like swelling below his chin, extending down his throat and obviously causing great embarrassment in breathing—so much so that the possibility of tracheotomy had to be considered. As this swelling was not confined to the salivary glands alone I could not see how it could be a cause of Mikulicz's disease, and with the pustular lady in my mind I asked to see his prescription. It contained three grains of postassium iodide. The prescription was altered, and within 48 hours, to his intense delight, the swelling had almost entirely gone and the Mikulicz's disease was cured.

An interesting point was that both these patients had albuminuria, with a few scattered casts, and in future I would always hesitate to give potassium iodide to anybody whose kidneys were in any way affected.

A Problem in Diagnosis

A strange difficulty in the differential diagnosis of uraemia concerned a certain middle-aged woman who had her right kidney removed, who complained of frequency and pain on micturition, and who had an enlarged left kidney and urine solid with albumin, and containing hyaline and granular casts. I first saw her in the morning, and the same afternoon I was sent for; she was completely unconscious and had two convulsions in front of me; in the interval she remained unconscious, with stertorous breathing. I concluded this was a case of uraemia and sent her into a nursing home, thinking she would not survive very long. The same evening, about 10 o'clock, during a game at poker, I had an urgent call to the nursing home, and when I arrived there I found pandemonium. The good lady was out on the landing. She had thrown the ornaments off the mantelpiece through the windows of her bedroom. She seemed to be in a delirious rage, and had knocked one of the nurses down, and was being held on to desperately by her husband. I am ashamed to say I got caught up in the general atmosphere of excitement, seized her by the shoulders, and said, "Get back into bed, you silly woman." She had one look at my inflamed countenance, and quietly returned to bed and went off to sleep. She showed a curious instance of alcoholic reasoning, because her unfortunate husband approached me and said, "Doctor, you are wonderful; I could do nothing with her. I went up to her and I said, 'Darling, its G—— speaking,' and she turned on me and

said, 'Don't you try these bloody broadcasting methods with me.'" However, she did have a high blood urea, and some two months later died with all the appearances of uraemia.

Two Happy Endings

My limited opportunities of seeing the effects of radium have been somewhat varied. I have records of five cases of radium inserted into the mouth for cancer; all of them were disastrous in the results, and I have been left with a feeling that I should think very long and very carefully before I encouraged anybody to use radium in the mouth. But the following case does show how on occasion a wonderful effect can be obtained in other parts of the body.

A patient aged 62 was sent down from London by Mr. Hedley. He had operated on her and found that she had an extensive round-cell sarcoma of the uterus, which he was able only partially to remove, and which he considered was of a very malignant type, as it had apparently increased enormously in size during a voyage back from Ceylon for operation. She was sent down to Bournemouth really to die. I was first asked to see her because she had a severe and alarming haemorrhage, and when I arrived she had bled so much that I should have been tempted to give her a good injection of morphine and let her depart in peace, except for the fact that she was very acutely conscious and terrified, and something had to be done. Mr. Adeney dealt with her. Under gas-and-oxygen he removed with his hand masses of necrotic growth, and packed in a dose of radium, which he repeated in 48 hours. She was not given a blood transfusion, but received liver extract for her profound anaemia; and the remarkable thing was that, 14 days after this, on examination, she had a beautifully smooth vagina and no trace of any growth could be felt. She has made the journey from Ceylon every year since. I last saw her in 1939, when there was still no trace of recurrence, and I had an air-mail letter from her a few days ago from Ceylon saying she was flourishing and well—exactly 10 years after the operation. Such are the contrasts of a very limited experience.

It is always necessary to be on the look-out for residues of tropical conditions in Bournemouth. I came across records of 14 cases of relapse from tropical sprue; and in passing I would say that these relapsing cases did remarkably well and gained weight on an exclusive diet of either oranges—twelve a day—or, if possible, strawberries, and six to eight pints of colostrum-free milk, liver soup, and, recently, injections of liver extract, and nothing else. One man sent down from Windsor Clinic as a hopeless case gained 2½ st. on that diet and is now well.

One most interesting case was that of a young woman aged 32 who had recently come to England from Hong Kong. She was running an intermittent temperature varying between 103° and 97°; she was very pale and thin, and complained of intestinal discomfort, slight diarrhoea, and frequency and pains after micturition. She had a marked secondary anaemia. On examination a large irregular and apparently soft and cystic mass could be felt in the left loin. It could be pushed back into the lumbar region and was resonant in front. Her urine contained a few granular casts, a moderate amount of albumin, and a number of blood cells. A pyelogram was done and a cystoscopic examination made, but without revealing any disease of the left kidney, and in spite of the anterior resonance the question of whether this peculiar mass was a spleen came under review. The examination of her stools did not disclose anything abnormal. Dr. Bottomley, who kindly saw the patient with me, suggested the possibility of kala-azar. A sternal puncture was done without results. Finally, Dr. Cole examined altogether 14 blood films taken at separate times, and eventually found one cell with parasites. The patient was sent up to London to Dr. Hamilton Fairley. A further sternal puncture was done and Leishmania organisms found. She was treated with neostibosan, and made a slow but complete recovery. She went back to Hong Kong, and I had a letter from her this year saying she was quite well and had managed to get out of Hong Kong in time.

A Diagnostic Trap

In a practice of my type a solid block of work comprises the treatment of the chronic elderly invalid, and, indeed, some of my more intimate colleagues have suggested to me that my *magnum opus* consists in the art of holding old ladies' hands. While I admit that the occasional holding of an elderly distressed hand may be a matter of great therapeutic value, yet I always hope with the other hand to feel her breasts, palpate her hernial openings, and, indeed, explore any other suspicious orifice, because there is no doubt that the supervention of a serious or an acute condition upon a chronic malady constitutes one of the greatest diagnostic traps in medicine.

Such a trap was a lady patient of mine, aged 64, who had apparently never been very well since the change of life, who had a slightly enlarged heart, with an aortic murmur, and a highish blood pressure, and who insisted on remaining firmly in bed: nothing I could do would get her up. She remained there in placid resigned enjoyment of her various maladies, did herself pretty well, and occasionally as a result had digestive upsets. One morning she had been sick; her bowels had been opened, she did not appear ill, her pulse was regular and of good volume, and there was no abdominal distension or tenderness, and I unfortunately watched her for four precious days. During that time she was sick about three times in the twenty-four hours, did not deteriorate in general condition, and had her bowels opened each day. On the fourth day a specimen of her vomit had a definitely faecal odour, and she was removed to the private block of the hospital, where at the operation Mr. Rooke found a segment of the small intestine caught up in the obturator foramen. Only the partially trapped portion of the gut was gangrenous; the remainder appeared normal. A resection was done, but unfortunately she died with uraemic symptoms some ten days later. This is the only obturator hernia I have seen, and it is an interesting fact that it came out her sister had also died of a strangulated obturator hernia.

I always try to get a necropsy. In these days of cremation it is surprising how often one can be obtained, and in time it may become an automatic rule. The correlation of clinical signs with post-mortem findings would certainly redound to clinical knowledge. Doubtless. even when all the projects of our New Planners come to their full fruition and that Utopia of organized prevention eventuates, there will still be ample material for the mortuary.

An elderly irascible man, aged 72, who had resided abroad and had evidently lived hard and thoroughly, gave all the signs of cirrhosis of the liver—alcoholic history, telangiectases of the nostrils, dropsy, distended abdomen with ascites, and, after tapping, a hard smooth liver edge that could be felt stretching across the abdomen at the level of the umbilicus. The spleen also appeared to be slightly enlarged. He always slept with a loaded revolver under his pillow, and to everybody's relief he one day had a sudden acute haematemesis and died.

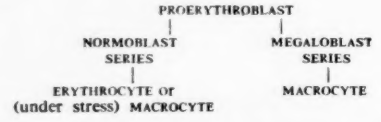
At the necropsy the diagnosis was found to be correct. The spleen was slightly enlarged to about the size that had been felt in life. He had dilated bleeding veins of the lower end of the oesophagus. He had cirrhosis of the liver; but it was the smallest liver I had ever seen—about the size of my doubled fists, tucked up high under the right cupola of the diaphragm, and could not possibly have been felt during life. What gave the sensation of that definite liver edge in life I don't know. There were no enlarged glands or thickened mesentery, and I do not think it could have been the rectus sheath, which is sometimes mistaken for the liver edge. The ascites made it impossible to discern liver dullness during life.

To-day there is a deep and worthy desire to facilitate and interlock the many resources of medical skill so that they are more readily and equitably available to all. In achieving this, some people visualize the ultimate extinction of private practice. There is one service that private practice gives which, without any feeling of undue egotism, I believe to be of the greatest comfort to the sick, and the pith and essence of sound medicine. I do not refer to clinical capacity, nor to organizing ability, nor to technical efficiency, but to that intimate friendliness, based upon mutual trust and affection, without intervening authority or intervening loyalty. This is the rock upon which any satisfactory private practice is built. I hope that, with our capacity for creative compromise, we shall succeed in weaving a similar pattern into the fabric of any new scheme.

Correspondence

Megaloblastic Anaemia of Pregnancy and the Puerperium

SIR,—Davidson, Davis, and Innes in your issue of July 11 (p. 31) group 16 cases of anaemia during pregnancy and the puerperium under the title "Megaloblastic Anaemia of Pregnancy and the Puerperium." At a time when the aid of sternal smears is sought with increasing frequency in the study of difficult cases of anaemia, it may not be out of place to make a plea for both a fuller description of sternal smear pictures and a strict definition of the terms employed. The authors have evidently satisfied themselves that in each of the 16 cases described there is adequate proof that the anaemia is megaloblastic. On this proof alone rests the validity of their claim that these anaemias are megaloblastic. Discussion demands a clear definition of the "megalobast." Unfortunately dissension exists on this point. The following diagram (after Israels) will aid clarity:



The classical megaloblast of Ehrlich is a large haemoglobinated cell with an open network nuclear pattern, and is one of a series of megaloblasts from an earlier basophil cell, the proerythroblast. A limited number of such megaloblasts arise only when the factor necessary for normoblastic maturation is lacking (as in pernicious anaemia). Such a megaloblastic marrow contains many proerythroblasts and few normoblasts. The megaloblasts are recognized essentially by their nuclear characteristics. Other workers deny these megaloblasts a separate lineage and limit the term "megaloblast" to the earlier basophil cell, the proerythroblast. A previous publication makes it clear that Davidson, Davis, and Innes follow the latter usage. For them a megaloblastic marrow is one in which proerythroblasts are numerous and more mature red cells are reduced in number.

On scrutinizing their report it is found that in 3 of the 16 cases no sternal puncture was done (Cases 3, 12, and 14). Proof of their magaloblastic type must therefore rest on indirect evidence (the peripheral blood picture and the response to liver). In Case 3 (Hb 40%, R.B.C. 1,470,000, colour index 1.33, W.B.C. 12,000 per c.mm.) 1 c.cm. of liver extract was followed by a reticulocytosis in 4 days. In this and other cases discussed it must be remembered that following any prolonged or large demand on an active marrow (as, for example, blood loss at childbirth), macrocytes may be produced by a normoblastic reaction, and that such active regeneration is accompanied by a reticulocytosis. Can one be sure that such was not the case here? Again in Case 12 (Hb 52%, R.B.C. 2,180,000, colour index 1.19, W.B.C. 10,200 per c.mm.) the indirect evidence is not conclusive; 15 c.cm. of liver were given and reticulocytosis noted after 3 weeks. In Case 14 (Hb 29%, R.B.C. 1,330,000, colour index 1.09, W.B.C. 8,800 per c.mm.) 48 c.cm. of liver were given and reticulocytosis noted 2 months later. There seems little concrete proof of a megaloblastic anaemia.

In 6 of the 7 cases seen before liver therapy the qualitative and quantitative erythroblast pictures were identical with those found in pernicious anaemia in the stage of relapse. Case 9 (Hb 48%, R.B.C. 3,200,000, colour index 0.75) contained more normoblasts than the authors would expect to find in a case of pernicious anaemia. On what grounds, then, is it included as a proved megaloblastic anaemia? May this not be an active regenerating marrow showing a normoblastic reaction? The amount of liver given was 30 c.cm. (+ iron, etc.), which was followed in 7 weeks by reticulocytosis. Is the so-called liver response an example of *post hoc ergo propter hoc*?

The remaining 6 cases are not convincing. They were first examined 2 days to 2 months after liver therapy was instituted. They showed mixed "megaloblastic" and normoblastic marrow pictures, and in one case, 13 (Hb 29%, R.B.C. 1,200,000, colour index 1.21), gave a normoblastic picture. The latter had received 42 c.cm. of liver (+ iron, etc.), and a reticulocytosis was noted a month later. Is there any proof of a megaloblastic anaemia here or is this a normoblastic anaemia responding to iron and showing spontaneous regeneration? In Case 15 (Hb 32%, R.B.C. 1,580,000, colour index 1.01) normoblasts preponderate and liver (+ iron, etc.) was followed by a reticulocytosis in 2½ months. There were similar findings in Case 11 (Hb 18%, R.B.C. 950,000, colour index 0.95). What proof is there that these are not normoblastic anaemias? Only 2 cases were seen before delivery. The usual pernicious anaemia of pregnancy clears up after pregnancy, or, as Beatrice Russell shows, even during pregnancy in the case of West African women, some of whom after a course of liver continued to term without further treatment. I feel that the work of Russell (*Lancet*, Dec. 27, 1941) deserves consideration in any publication on this subject, and I would draw the authors' attention to this interesting article.

Two conclusions emerge from this discussion. Differentiation of a megaloblastic marrow from a hyperplastic normoblastic marrow may not be easy and demands close study of every characteristic. The work of Israels in this country is of outstanding value in this respect, and his classification of the erythroblasts (as indicated in the diagram) gives the most rational and reliable approach to difficult marrow pictures. Until one terminology is accepted as a standard and its terms exactly defined, confusion of thought in haematology is inevitable. If the term "megaloblastic marrow" is applied to marrows showing an increase in proerythroblasts without further qualification, such terminology offers no clear indication either as to the cause of the anaemia or to its treatment.—I am, etc.,

Manchester. M. L. THOMSON.

Oxygen Administration

SIR,—In the *Lancet* of May 16, 1942 (p. 587), Prof. R. S. Aitken and Dr. A. B. Cruickshank give some results dealing with the efficiency of the modification of my mask for oxygen administration by Drs. A. Rose and T. H. Sellors (*Lancet*, 1940, **1**, 648). These latter observers preferred to use the mask with the opening above. Four years earlier (*Brit. med. J.*, 1936, **1**, 1246), I pointed out that the mask could be used in this way and I tested it carefully in this position. Drs. Rose and Sellors seem to have overlooked this.

Prof. Aitken and Dr. Cruickshank's figures for alveolar CO_2 and O_2 under various rates of oxygen flow are similar to mine. After a year's careful trial, these observers have recommended the mask to the Department of Health for Scotland for use in hospitals and mobile oxygen units as a supplement to the supply of B.L.B. masks available for treatment of gas casualties. They state that the celluloid mask used with the opening above is the most comfortable and least disturbing apparatus that they know for the administration of oxygen, not excepting the B.L.B. mask. In every main respect my findings have been confirmed, and, therefore, I made no exaggerated claims for the mask as was stated in certain quarters.

I was ill during the time of publication of Prof. Aitken and Dr. Cruickshank's paper, and this explains the delay in my letter.—I am, etc.,

London, N.W.3. J. ARGYLL CAMPBELL.

Sudden Compression Injuries at Sea

SIR,—Majors N. P. Breden, A. L. d'Abreu, and D. P. King in their article on sudden compression injuries of the abdomen at sea (Jan. 31, p. 144) make some interesting observations upon the examination of fish killed by depth charge without, however, drawing any conclusions.

Eight specimens of *Gadus morrhua* (cod) brought to the surface by a depth charge in 150 feet of water were examined, and the following facts noted. No fish came up until six minutes after the explosion, and fifteen minutes later they were still arriving at the surface. When first seen all the fish showed: (1) Prolapse of the stomach—the greyish-red mucous membrane of that organ in some cases protruding like a balloon between the jaws. (2) Prolapse of the anal canal. (3) Dehydration. The last could only be judged by comparison with the feel of the fish caught by more usual methods and by their

apparent lightness for size upon the scales. (No control was available.)

Immediate biopsy showed, in one case only, a small quantity of blood-stained fluid in the coelomic cavity, and in all cases intussusception of the intestines to a greater or lesser degree into the invaginated stomach—in one case as far as the last loop of large intestine. When the intussusception was reduced there was intense congestion of the vessels in the outer coat of the stomach, and some submucous haemorrhage was visible on opening the organ. There were no other positive findings.

E. Baldwin (*Introduction to Comparative Biochemistry*, 1937) states in regard to osmo-regulation in teleostean fishes that marine teleosts, whose internal osmotic pressure is less than that of their environment, avoid desiccation by swallowing sea-water and excreting the unwanted salts by way of the chloride secretory cells in the gills. Furthermore, "if swallowing is prevented by introducing a rubber balloon into the oesophagus and inflating it the fish is unable to keep up its regulation and soon dies." I suggest that, after an underwater explosion, desiccation consequent upon inability to swallow brings the fish to the surface, where, later, it dies. Possibly, however, spontaneous reduction and recovery may occur, for fish have been observed to swim off after a time.

It seems, if the above explanation is true, that the mechanism causing death in marine teleosts has little application to human cases; and traumatic intussusception, I think, has not been described as occurring in cases of abdominal compression due to detonation in water. The cause of death in elasmobranchs seems still to be uncertain.—I am, etc.,

A. G. EVERSON PEARSE,
Surg.-Lieut., R.N.V.R.

Self Medication and the Chemist's Shop

SIR,—Although, owing to the war, I am not yet a naturalized citizen and am still but a guest in this country, I am deeply interested in the controversy concerning the future of its medical services and in the health of the nation. Will you therefore allow me a few remarks on a question which has, so far as I know, not been mentioned in this discussion, mainly in the hope of stimulating comment by observers more experienced and competent than myself. The remarks refer to: (1) the manufacture and sale of palliatives; and (2) the position of the chemist's shop.

The public is probably by now sufficiently enlightened to know that cancer and consumption cannot as yet be cured by any known drugs. But the unlimited and indiscriminate sale of preparations *effectively relieving symptoms* constitutes, in my humble opinion, a constant injury to the nation's health and probably causes many deaths. To give only two examples. (*a*) Scalding and frequency of micturition are symptoms of a cystitis which may exist by itself, or, e.g., accompany early tuberculous kidney, renal calculi, carcinoma of the prostate or bladder, or be the precursor of an ascending pyelonephritis. Good "kidney and bladder pills" will temporarily relieve the symptoms and will do so in repeated attacks until the underlying condition produces gross effects and brings the patient at long last to the doctor when the condition has become incurable or at least has caused permanent damage with prolonged incapacitation. (*b*) The same applies even more obviously to the syndrome of "indigestion." The patient will successfully "cure" his symptoms until one day his ulcer produces a severe, perhaps fatal, haematemesis or a perforation, or until his carcinoma has become inoperable.

The more effective the preparation the more dangerous it is in the hands of the patient without medical supervision. How many patients die yearly or become seriously ill for long periods by the indiscriminate use of palliatives for undiagnosed conditions? We know that a large proportion of successful research work has been initiated by pharmaceutical manufacturers, and that dramatic discoveries have come from the laboratories financed by them. We are duly grateful. But the men who carried out the research work could have had equal or better facilities if the State would build and maintain such laboratories out of the millions of pounds it could save by preventing loss of life and of working hours caused in the manner described.

The chemist in his shop is to-day the arbiter for a surprisingly large section of the population on the question whether or not a doctor should be consulted, and therefore, in some cases at least, on whether the patient's trouble will be correctly diagnosed and, if possible, cured. An unbelievably high proportion of patients from all except the very rich classes first "consult" the chemist in the hope of being given a remedy without having to pay the doctor's fee. I have no grudge against the individual chemist; the few of them whom I know are honest and conscientious. But the whole dangerous situation is aggravated by the fact that many doctors still supply their own medicines, thus becoming direct "business competitors" of the chemist. Inevitably a chemist who refuses to sell a preparation to a patient and sends him to a dispensing doctor deprives himself of a customer. Supposing even that the chemist had the knowledge and facilities for correct diagnosis—over the counter!—can one expect him in every case of doubt to send his customer to his business competitor—the dispensing doctor?

I can think of only one way to remove the pharmaceutical chemist from his embarrassing position (which has developed through no fault of his own), but it would be drastic and unpopular, and would need legislation. This is to restrict the free sale of drug preparations in open shops to cosmetics and other toilet goods; to forbid "counter-prescribing"; to require a doctor's prescription for the dispensing and sale to the public of all medicaments; and to confine the retail trade in drugs to qualified pharmacists and their bona-fide assistants. It is lawful for general practitioners to supply medicines; and in rural districts, or in emergencies anywhere, there may be no one else at hand to do so. But the medical profession could co-operate with the pharmacists and earn their good will by a self-denying ordinance to abstain from competition in the routine dispensing and supply of drugs, etc., in populous parts of the country.

The only serious opposition to the very necessary reforms would come from the vested interests of the industry, and only energetic parliamentary action could hope to be effective in achieving the proposed change,—I am, etc.,

Nottingham. E. L. LOEWENTHAL, M.B., B.S.Lond.

Amoebic Liver Abscess

SIR,—Quite a number of papers and short articles on this condition have been published in the *British Medical Journal* and in the *South African Medical Journal* during the last year or two. Mostly the question was raised whether open operation or aspiration, both combined with emetine treatment, would give the more satisfactory results. In only one instance do I remember a very definite opinion given to the effect that emetine treatment alone without any surgical intervention at all would be safer and at least as successful. I have only treated a limited number of cases (9), but the emetine treatment alone has given such excellent results that I should like emphatically to support this opinion.

My first and most advanced case illustrates the point very well. The patient had a huge swelling protruding in the epigastric region and dullness on percussion over the lower half of the right chest at the back. *X*-ray examination showed the diaphragm to be pushed up high in this region. The epigastric swelling was incised and a big abscess drained. Exploration of the abscess cavity made it obvious that the swelling further back in the liver must have been caused by another big abscess. I felt uncertain whether there were one or several more abscesses in the liver and abstained from further surgical intervention. On emetine treatment the big swelling shrank with such amazing rapidity that I decided in future to use emetine only.

All subsequent cases showed striking improvement of the general condition and fall of temperature in 3 to 5 days with emetine treatment only. In most cases the swellings could scarcely be felt as distinct lumps after about 14 days. I think a "safety" emetine course 2 to 3 months later is advisable. One patient who did not come for a second course had a relapse after a few months. Another case had been treated elsewhere by open operation: relapse was cured with emetine injections.

Aspiration can scarcely be free from such dangers as infection of the pleural space, injury of adherent bowels, or mixed infection. Perhaps only in an extremely "toxic" patient, in whom one big abscess is diagnosed, aspiration might be justified. I fail to see the value of repeated aspirations. The cavity is bound to be under negative pressure after aspiration and

to fill up again with serum, blood, or purulent matter until it can be closed by the healing process.

There is ample evidence that any toxicity of the contents of the abscess disappears speedily with emetine treatment.—I am, etc.,

Grootfontein, S.W.A. R. W. J. SCHEEL.

Denis Browne Technique in Talipes Equinovarus

SIR,—The Denis Browne method of treatment of congenital talipes equinovarus is considered highly satisfactory by a large number of orthopaedic surgeons in this country. Its merits are now being recognized in America, but the published descriptions of its employment as modified by individual surgeons must alarm those who know how adequate the original method is in every way and upon what sound mechanical principles it is based. Thus an article in the April number of the *Journal of Bone and Joint Surgery*, based upon a comparatively short experience of 2½ years, describes extensive modifications, none of which appears to be justified. The side bar of the splint has been reduced to rudimentary proportions, felt wedging is no longer used, and the splint is heavily padded with sponge rubber. The sole-plate has a narrow backward prolongation which must play havoc with the bedding when the infant kicks vigorously. The feet are simply strapped to the splint, without any of the repeated manual over-corrections that are such a fundamental feature of the original treatment, and which have been found so necessary in this country.

I am convinced that this method of treatment would fail to obtain good correction in a high proportion of the cases seen in England, and I would urge that those who have to treat this deformity should give an extended trial to the exact technique of Mr. Denis Browne before introducing variations.—I am, etc.,

Stanmore. K. I. NISSEN.

Medical Planning

SIR,—A meeting of the Middlesex Panel Committee was recently held to discuss the interim report. Only the remnants of that committee were present, for many of its members, the youngest whose advice and opinion would have been so valuable, were away on national service. The committee wisely agreed that under such circumstances no authoritative decision could be given.

I was very much perturbed at the conservatism that was revealed in the subsequent discussion. Even so mild a resolution "that group practice be a feature of any future service" was negatived because those present were so afraid that this might be the thin edge of the wedge leading to the dreaded State service. No. 5 (*a*) of the "Questions for Discussion" in the report was agreed to with only a few dissentients.

I did not expect a salaried State service to be agreed to, although I voted for this. What I actually advocated was really a modified State service, as one of the members pointed out; on reflection I think he was correct. I advocated a system of group practice wherever this was possible, such groups working at health centres provided by the responsible authority. Space will not permit details of these health centres, some features of which should be obvious to all. Here, and at their homes, the doctor would attend such families as had chosen him. Such centres would be governed by committees of lay and medical men, while that part dealing with medical treatment by medical men only, in a similar way to the county committees for the National Health Insurance at the present time. Certain modifications are, however, essential. I had hoped that by some such method the general practitioner could be brought into close touch with both hospital and public health work, and that his work would gradually change so as to include the maintenance of health of those trusted to his care, not merely its attempted cure when broken down. Such views, however, were not tolerated by the members present; they did not wish to be disturbed.

If this is the opinion of the majority of the profession throughout the country, some very important questions arise. There can be no doubt that the period succeeding the war will be one of reconstruction, of economic planning, and of greater socialization. The muddled conglomeration of health services that have gradually arisen, without any definite plan or direction, will not be tolerated. The health of the nation as a whole must come under one control. If we advocate the extension of National Health Insurance to dependants and to those of like status, to include consultant and specialist service (the same people having a right to hospital service), the Government will be providing for 90% of the population. Is it at all likely they will do all this and not insist on a higher standard of work, better organization, and greater control?

Why bury our heads in the sand and wait for the tide to overwhelm us? Let us formulate our own scheme of reform rather than have one thrust upon us. The scheme outlined by the question No. 6 in the interim report is a good one, although I personally think it will need State authority and financial backing to put it into practice. It is of paramount importance that as a body we come to an agreement between ourselves; that that agreement should be accepted by 90% of the profession; moreover, it should be one which is possible for the Government to accept. Let us not be afraid to discuss the salaries we are prepared to accept and the conditions under which we are prepared to work. Unless we can agree upon this we shall find a Government scheme suddenly confronting us, resulting in divided counsels and a difference of opinion, as in the case of the recent National Health Insurance extension. The result can only be disaster and defeat.—I am, etc.,

Wealdstone. J. E. GAZE.

SIR,—Although filled with admiration for the manner in which the Medical Planning Commission in its interim report has tackled the multitude of problems with which it has been faced, I must confess to some considerable uneasiness owing to the fact that these vitally important matters are being discussed at this particular time. No one knows what the "brave new world" for which we are planning is going to be like, and it is only too likely that any regime now adopted may be completely impracticable under post-war conditions.

I am quite unable to derive any comfort from the assurance, given in italics in para. 4 of the introduction, that the Commission will not consider the recommendations "until the profession has made known its views through the usual channels." To what proportion of the profession are these "usual channels" still open? It is surely realized that the majority of the younger members for whom these recommendations have been made are now serving with H.M. Forces, either over-seas, when a letter such as this would take months to reach this country, or else under conditions where it is impossible for them to attend their local B.M.A. meetings and discuss these momentous questions with the colleagues with whom they hope to work after the war.

It is just this section of the profession who will have the most definite ideas regarding the advantages and disadvantages of a State Service, which, they quite rightly realize, would have many points in common with the medical services of the Navy, Army, and Air Force to which they are now giving the best of their professional skill. It must therefore be made clear that any decisions which may be reached by the Medical Planning Commission before the end of the war will have been made without a large and important section of the profession having been consulted. This is surely a most unjust state of affairs and quite contrary to the intentions of the Commission as shown in the report, where consideration is given to the interests of all parties when viewed from a peace-time standpoint.—I am, etc.,

H. L. HOFFMAN.

SIR,—In planning good health for a people the first essential seems to be an outlook that can view the question after it has been shorn of all considerations except the doing of what is best for the common good of all sorts and conditions of people. Such purity of purpose is not so simple as it sounds. Human nature is such that altruistic endeavour, even in the best of us, is apt to be tinged to some degree, perhaps almost unconsciously, by self-interest. Such a tendency would be checked by having suitable representation of the lay population to share in the planning. After all, the masses for whom a scheme is being planned ought in fairness to have a good say in its early construction. Having agreed upon a plan in principle, then it should be possible to ensure that the terms of its

application allow for equitable adjustment as regards the status and financial position of medical men, in whatever branch of the profession they serve.

Clear vision seems likely to be dimmed even more by traditional thinking, which has had disastrous effects in other spheres of national conduct, and is not conducive to success in a rapidly changing world. Much emphasis has been laid on treatment, whereas a vigorous constructive policy based on the prevention of disease is needed; in other words, there should be a biological rather than a pathological outlook. The possibilities of such a policy have been clearly demonstrated by the findings of investigators at the Peckham Health Centre. Mass radiography, which is on the way to being a recognized procedure, should do much to enlighten public opinion as to the value of forestalling active disease, and the opportunity offered by this awakening should not be lost.

Lastly, the relation of sociological factors to mental and physical breakdown should not be forgotten. Medical planning should ensure a close association between actual treatment and the application of measures for the betterment of an industrial or home environment that has led to the loss of health.—I am, etc.,

Northampton. N. B. LAUGHTON, M.B.

Planning Commission's Report

SIR,—I fear it is too much to hope that Dr. Learoyd's letter will be read by that doubtless earnest body the Medical Planning Commission. Yet has any one of them any personal experience of country practice? Does even one of them realize the complete difference between town and country conditions? Take just one point—the ratio of visits to surgery attendances; mine often runs as high as 4 or more to 1, and on a 3-months test last summer averaged 2.5. We have no trams, tubes, or buses to bring the lame, the blind, and the aged to us, and one additional reason for choice of doctor is "does the baker's van run that way to fetch along the medicine."

It is not only in medical matters but in so many other town-governed activities (A.R.P., rationing, N.F.S., etc.) that we country dwellers are having the realization forced on us that all this planning, all these rules and regulations are made for urban existence and closely populated areas, that many of these schemes only fit the rural way of life where they rub, and cause endless waste of time and material with hypothetical benefit. Further, as Dr. Learoyd so rightly points out, a look at any map of any county will show how many hundreds of villages there are and how many dozens of towns.

Social areas are mainly created by physical features, not by county or borough boundaries. It is crazy to have to send throat swabs 50 miles by post when there is an excellent laboratory 5 miles away; or to assign a village for rationing to a town where none of the village's inhabitants ever go or indeed in these days can go. The town-trained bureaucratic mind just cannot understand that, however.

So when the M.P.C. gets down to its next session could it just spend some time trying to visualize the work of those thousands of doctors who live and serve outside the towns? It will benefit the patients as well as the profession. And for any sake let us keep our house free from political bias or control.—I am, etc.,

Newton Ferrers, S. Devon. W. F. BENSTED-SMITH.

Nurses in Hospital

SIR,—I am profoundly shocked by the letter of Dr. S. L. B. Wilks, in which he says "the brutality of matrons (and sometimes of sisters) to their nurses is notorious." I wonder does Dr. Wilks know of one single case of "a brutal matron" at the present time, or is he thinking of an isolated case or two in the past of a matron who was, perhaps, too harsh and narrow in her discipline. Surely if Dr. Wilks does know of such a case it is his public duty to bring it to the knowledge of the chairman of the hospital concerned for investigation.

In my own rather wide experience I have found that all the improvements in conditions for nurses have come through recommendations of matrons to their committees, and that the anxiety of the matron for the well-being and happiness of the nursing staff takes second place only to her thought for the well-being of the patients. The greatest worry a matron can have is the serious illness of a member of the nursing staff. Apart from what I feel is a most unjust assertion, these statements make the work of matrons more difficult than it is already. Moreover, it is apt to be bad for recruitment to training and thereby does the health services of the country much harm.—I am, etc.,

HELEN DEY,
President, Association of Hospital Matrons.

SIR,—The shortage of nurses, both in quantity and quality, is a subject which is necessarily exciting much attention at present. Many suggestions have been made for remedying the shortage, and in particular criticism has been levelled at nurses' homes, the schoolgirl atmosphere engendered by them, and the petty tyranny exercised by members of the administrative hospital nursing staff.

My intention in writing is to propose that the nurses' training schools should be affiliated to a university, and that nurses who have completed their training and the necessary examinations for State Registration should receive a B.A. degree of that university. In this way the social and intellectual status of nurses would be considerably raised: parents would know that their children were receiving a university education and would be more likely to encourage their daughters to enter the profession. This university affiliation would be more satisfactory if it were something more than a nominal one and allowed for some lectures—e.g., in anatomy and physiology—with the members of other faculties and in any case for a social intermingling with them. In certain nursing schools, however, remote from universities, the principle of external studentship would have to apply.

No doubt the universities would insist on some form of qualifying or matriculation examination, and this would at first tend to limit candidates. I do not envisage that all nurses would or could undertake the course, and a percentage of assistant nurses (unqualified) would still be required, but these would, I think, diminish as time went on. The initial difficulties in working out such a scheme might be great, but I submit that it is one well worthy of consideration and for which the time is ripe.

These views are my own and not necessarily those of the authority I serve.—I am, etc.,

Colindale Hospital, N.W.9. W. E. SNELL.

SIR,—I have followed with interest the recent correspondence in your columns about the difficulties and troubles besetting the nursing profession, but so far I have not seen any suggested cure that really gets down to the root of the matter. In my view the present system of training nurses has got to be changed from an apprenticeship to a trade to an organized teaching of a profession. The position to-day is remarkably similar to that of the medical profession in the middle of the nineteenth century.

How many times, in the course of her training, does a nurse have to take a temperature, make a bed, or handle a bed-pan, and how few times does she require to become proficient in these arts? Likewise, how few times does she give a hypodermic, set up a subcutaneous drip, or assist at a transfusion? Contrast the hours of cleaning and polishing usually demanded of her with the scanty time allotted to lectures and demonstrations, crammed in between tours of ward duty and frequently abbreviated by delays in theatre or ward. In other words, the real evil lies in the fact that the probationer nurse is first and foremost a servant of the hospital she is training at and only secondly a student.

Now I should like to advocate an arrangement similar to that followed in the training of medical students. There would be a number of training schools, each independent of but attached for practical teaching to a large hospital. By preference these would be the larger non-teaching voluntary hospitals and the municipal and county hospitals, as the teaching institutions already have their educational facilities sufficiently occupied. The young nurse-to-be would attend one of these schools, and, during her first year or fifteen months, would be well grounded by means of lectures, demonstrations, and practical work, in anatomy, physiology, pharmacology, and the handling of drugs, dietetics, and nursing practice. In the last

half of this period a series of short demonstrations would be held at the hospital, chiefly to acclimatize the pupils to the hospital atmosphere. After passing an examination in these subjects the student nurse would then start a second year's work in which she would spend half her time at the school on surgical and medical studies and in learning how to give the more complicated treatments expected of a nurse, and the other half in ward work at the hospital. But not, be it noted, doing night duty, theatre duty, or polishing trolleys. A final examination would pass the girl out as a trained nurse, ready to be absorbed, either by her own hospital or by one where teaching was not undertaken.

As to the financial side, the school of nursing would be partly supported by grants from the State, either direct or through the College of Nursing, and partly by fees from the students. These would be low, and scholarships in ample numbers would be provided for poorer girls of promise. During the second part of the training the hospital would pay a small salary for the services of the students, and, on passing out as trained, the nurses would command a proper living wage.

While studying at the school the girls would be allowed to make their own living arrangements, and their spare time would be absolutely their own and in no way under the supervision of the school authorities except in the broad sense in which a university keeps an eye on the public acts of its students. They would be encouraged to form societies and to organize a joint social life, and in most cases a hostel would be provided for those students who could not live at home and did not desire to live in "diggings." This hostel, however, would be under the charge of a matron or warden quite distinct from and independent of the matron of the hospital and the principal of the school. Trained nurses wishing to take up theatre, maternity, or district nursing would return to the school for a further theoretical course followed by a practical course at the hospital, becoming entitled to a special diploma after a test.

If this scheme were adopted hospitals and patients would benefit in that all the nurses actually working would have had a fair amount of training. Nurses would benefit in that, instead of four years' hard drudgery on a pittance of a wage, they would be sure, after a short course of about two years, of an ample range of appointments at a decent salary. Parents also would be able to let their daughters take up the profession secure in the knowledge that the training was short and that their children would be happy in well-run hostels free from that petty tyranny which unfortunately so very often overshadows the present system.—I am, etc.,

Wimbledon, S.W.20. A. HOBSON.

SIR,—Dr. S. L. B. Wilks of Colwyn Bay (July 18, p. 84) writes that the "brutality of matrons to their nurses is notorious." In the issue of Aug. 1 Dr. T. C. Mackenzie writes from Inverness that "matrons throughout the land are loyally and ungrudgingly caring for the welfare of their nurses and probationers."

Dr. Mackenzie has spent his distinguished career associated with mental institutions between Edinburgh and Inverness, and it is difficult to see how he can speak with any authority on hospitals throughout the land. The apathy of those members of the medical profession associated with hospitals is responsible, in great measure, for the present unsatisfactory conditions for nurses. There are few members of the visiting medical staff of a hospital who, like Dr. Wilks, appreciate one of the main defects in the present nursing services. There are many like Dr. Mackenzie, who know little or nothing of a nurse's hospital life.

The tyranny of some matrons, the petty restrictions, long hours, and the limited and often inconvenient off-duty inflicted on nurses have brought almost to bankruptcy a noble profession.

All the exhortations of Mr. Ernest Brown will not bring recruits into the nursing services unless there is a rapid and effective change of nursing conditions in most hospitals. Dr. Wilks's letter contains too much of the truth to be ignored, while Dr. Mackenzie in his letter has allowed his indignation and misguided chivalry to assume the voice of experience and authenticity.—I am, etc.,

Manchester R. SYDNEY DAVIDSON.

[This correspondence is now closed.—ED., *B.M.J.*]

Phenol and Camphor for Desert Sores

SIR,—As Capt. H. M. Rapport, in his interesting article on desert sores (July 25, p. 96), does not mention a form of local treatment I found almost universally effective in this condition in the Sudan, I give it in case he, or others working in the Tropics, may find it useful.

Liquid carbolic acid 30% in camphor is applied on dry gauze once a day with a cotton-wool covering. For some unexplained reason, carbolic in combination with camphor is not toxic up to strengths of 50% so long as it is not in contact with water. For this reason the skin should be dry when it is applied, and the dressing should not be covered with strapping or a waterproof covering which would retain sweat. Sores thus treated are usually clean and healing in a week.

Incidentally, I see that the 50% strength of the same preparation is now widely used in the United States for mycotic infections of the feet. The liquid is easily carried in a small bottle, and can be applied on any dry material, not necessarily sterile, so that it is an eminently practical form of treatment for field use.—I am, etc.,

Beccles, Suffolk. C. GRANTHAM-HILL. Late Senior Surgeon, Sudan Government.

*** The *Journal of the American Medical Association* for June 27 this year contains a warning against "the promiscuous and unsupervised use of equal parts of phenol and camphor in the treatment of 'athlete's foot.'" The U.S. Food and Drug Administration has stated that "a mixture of equal parts of phenol and camphor is capable of producing necrosis. . . ." To conform with food and drug legislation in that country, this preparation, under certain circumstances of sale, has to bear a label to the effect that it "should not be applied to damp skin or over extensive areas; should not be applied under a bandage; and that if, after use, the skin turns white or is otherwise discoloured, use of the preparation should be discontinued immediately unless the physician directs otherwise."—ED., *B.M.J.*

"Positive Health"

SIR,—The present interesting discussion of the meaning of the term "positive health" and the advisability of its use if it is to mean "exuberant health" suggests that an important factor is being overlooked. Obviously, as Mr. Wilfrid Adams points out, we cannot in a generation, nor indeed in a century, achieve exuberant health for all. Neither, however, can "we" achieve the much less ambitious aim of mere "health for all." One is reminded of a phrase from a *Times* leader of nearly 100 years ago concerning the sanitary reforms of Edwin Chadwick: "We prefer to take our chances of cholera, and the rest, than to be bullied into health." Individuals need all the guidance and reparative work our profession can offer, but by their own freely given co-operation and effort alone will they achieve or keep their health.

This raises the whole question of health education. There is little point in discussing whether it should be promoted or not, because it does in fact exist—every time a grandmother repeats an old wives' tale or a firm advertises a patent medicine. The problem is rather to find out how best to begin to eliminate the very considerable amount of bad health education, and to direct and co-ordinate the good, which is now also of considerable and growing bulk. As the bad can only be eliminated by substituting something better, the question resolves itself into a discussion of what "good health education" is and what it should endeavour to do.

There are doubtless, and rightly, many shades of opinion. I would like to suggest that it cannot be too clearly emphasized that health education is a function of preventive medicine only: in fact, one of its most formidable tasks is to eradicate the pernicious habit of self-treatment. We must not, however, confuse the curative and preventive aspects of medicine with the quite different distinction between private practice and public health. In each of these to-day both aspects are found in some degree, and one of the most desirable developments of the future may be in the growth of the educative work of the family doctor. Commercial propaganda, however regretted, gives us something of a lead as to what health education should try to do. It should, surely, "create a demand," persuade and help people to acquire a taste for health. The means

by which this may be attempted are too numerous and their relative values too controversial to be discussed here, but two lines of approach may be mentioned. First, good personal and community health habits should be inculcated in schools and clinics and surgeries, but primarily in homes. Secondly, the desire for healthy environmental conditions should be developed by making such conditions accessible to all. These are undoubtedly Utopian as immediate achievements, but that seems no argument against advancing them as aims. It is apparent at least that some clearly conceived and co-ordinated policy of health education is an essential part of any medical service directed towards the achievement of health of positive, or indeed any other, degree.—I am, etc.,

Gravesend. HERBERT S. DAVIES.

SIR,—I envy those of my professional brethren whose agile intellects are so satisfied that they understand exactly what is meant by "positive health" that they are prepared to devise a system for its attainment. I see from my dictionary, which is beginning to disintegrate from long use, that "health" is defined as "that state of a being in which all the organs are sound and in proper condition," to which I would add "and functioning normally"; and I cannot conceive a more desirable condition. The same tattered dictionary tells me that "positive" means: "Position. Definitely laid down or expressed. Explicit. Opposed to implied. Not admitting any condition or discretion. Express. Absolute. Real. Existing in fact. Not negative. Confident. Fully assured. Dogmatic. Demonstrable. Distinctly ascertained. Over-confident in opinion or assertion."

One might be pardoned for thinking that we ought to be satisfied to strive so far as we are able to achieve and maintain a state of just plain "health" as defined above for our patients. Many of us have been so striving throughout our professional careers. But *positive* health! Let us take care that it shall not come to mean: "The state of a being which complies explicitly with the official specification definitely laid down and expressed by the Minister of Health. Such compliance must be absolute, real, confident, fully assured, dogmatic, and demonstrable, and nothing in this regulation is to be interpreted as admitting any condition or discretion or permitting any departure therefrom"; followed by a table of penalties to be inflicted on the doctor who by negligence or default fails to prevent any deviation from the Government specification. Which is absurd.

Perhaps my old dictionary may be obsolete, but even so I rather like "over-confident in opinion or assertion."—I am, etc.,

Brookwood, Surrey. H. M. STANLEY TURNER.

Incidence of Breast-feeding

SIR,—I was interested to read the article on breast-feeding by Dr. Enid Hughes (July 18, p. 69). For a period of 2 years in a working-class district (Port Glasgow) I collected figures on this point: infants breast-fed 128; breast-feeding plus complementary 23; breast-feeding for 2 weeks 96; breast-feeding for 2 months 67; Ostermilk 48; cows' milk 56; Cow and Gate 1; Nestlé's 7; Sister Laura's Food 7; total 433.

The average number of mothers who continued over the 2nd month to breast-feed their babies was only 33% of the total attending the clinic. The cause of failure in breast-feeding was illness of the mother in 15 cases (pleurisy 1, tuberculosis 2, chronic nephitis and debility 1, anaemia and general weakness 3, and acute mastitis and cracked nipples 8).

The majority of the mothers stated that when they came out of hospital or got up to do their housework the "milk left them." The mother was often overworked and tired, and, following the advice of friends, put the baby off the breast as the child was cross after she returned from hospital. Once a bottle was substituted for the breast, there was no difficulty in weaning the baby.

Some mothers have no desire to pursue breast-feeding even though they have been instructed at the ante-natal clinic and at the maternity hospital, and immediately they are away from the supervision of the nurse they bottle-feed the baby, still having more faith in the amount of milk to be seen and measured in a feeding-bottle than in their own supply of breast-milk. By the time the mother manages to come to the clinic, about the 3rd or 4th week, the milk supply has ceased or is small in amount, and the mother is firmly convinced that her baby is more satisfied on the bottle. It seems to me that it is when the mother is left alone without a nurse after the 2nd week that the difficulty begins. The foregoing seems to point to more home visiting daily after the 2nd week either by the midwife or the health visitor, so that the mother can have the advice and necessary encouragement to breast-feed her baby. As well as instruction to the mother at the ante-natal clinic evening classes on mothercraft and nursing could be included in the night-school curriculum, and girls in the upper classes could be taught more of this and domestic science at schools, for many girls marry while still in their teens.—I am, etc.,

Glasgow. GRACE MCLINTOCK, M.D., D.P.H.

The Rheumatic Lung

SIR,—I was interested in the allusion by Dr. James Burnet (June 27, p. 804) to the fact that he was the first to call attention to the rheumatic lung. I have read Dr. Eli Davis's reply, (July 25, p. 113), in which he has pointed out chapter and verse that A. E. Garrod had already alluded in 1890 to the rheumatic "poison" as an occasional factor in the cause of pneumonia. In 1889 I was house-physician to the late Dr. Wm. Howship Dickinson at St. George's Hospital. He then taught—I have often heard him dilate on the theory—that rheumatic pneumonia was one of the clinical forms of that disorder. He always stressed that in this category the pneumonia was usually bilateral and generally accompanied by pericarditis, and the prognosis fairly good.—I am, etc.,

Tolleshunt Darcy, Essex. BEAUMONT H. COMERFORD, M.D., D.P.H.

Obituary

We regret to announce the death in his 88th year of Sir WALTER SCHRÖDER, K.B.E., whose long and valuable service as coroner brought him into friendly contact with generations of medical men. His participation in coroner's work began in 1870, and in 1894 he was made deputy coroner for Central Middlesex; soon afterwards he became deputy coroner for South-West London and Surrey and held that post till 1899, when he was made deputy coroner for Central London. He succeeded to the senior post in 1910 and remained at the Central London Coroner's Court until his retirement in 1930. During his 60 years' service it was estimated that he had taken part in 50,000 inquests. Sir Walter was for many years honorary secretary of the Coroners' Society of England and Wales, and later its president; he was also honorary treasurer of the Medico-Legal Society.

Dr. JAMES EDWARD ENGLISH of West Hartlepool died recently in Hartlepools Hospital, where he had been a patient for the past 10 months. He was born at Kingstown, Co. Cork, in 1885, and studied medicine at University College, Cork, and in Dublin, graduating M.B., B.Ch., and B.A.O. of the Old Royal University of Ireland in 1908. In the following year he took up the post of house-surgeon at Hartlepools Hospital, and later, when he had begun private practice, he was appointed to the honorary surgical staff of that institution, in the work of which he continued to take a keen interest, succeeding the late Dr. A. W. G. Pearson as senior surgeon. Dr. English was chairman of the Hartlepools Division of the British Medical Association in 1925–6.

The following well-known medical men have died abroad: Professor HANS HUNZIKER, director of the Basle Health Office, aged 63; Dr. PAUL CLAIRMONT, formerly professor of surgery and director of the surgical clinic at Zurich, aged 67; Dr. HOWARD MORROW, ex-professor of dermatology at the University of California and ex-president of the American Association of Dermatology, specially known for his work on leprosy, aged 68; Prof. KURT BRANDENBURG, editor of the *Medizinische Klinik* since its foundation in 1904, aged 73; and Prof. ALBERT DÖDERLEIN, the eminent gynaecologist, formerly professor of gynaecology and obstetrics at Munich and a pioneer in the bacteriology of the puerperium, aged 81—his name is attached to the non-pathogenic organism of the vagina.

Universities and Colleges

UNIVERSITY OF OXFORD

At Congregations held on July 18 and 25, the following degrees were conferred:

D.M.—J. M. L. Burtenshaw.

M.Ch.—A. H. Hunt, R. H. Gardiner.

B.M., B.Ch.—M. H. M. Gilbertson, J. F. D. Frazer, D. S. Parsons, J. L. Boldero, J. D. Little, R. F. B. Bennett, Q. J. G. Hobson, W. D. M. Paton, W. A. Briscoe, H. G. Farquhar, J. D. Green, J. Pinching, K. W. Lovel, S. L. H. Smith, *J. M. Jefferson, *H. J. C. J. L'Etang, R. H. Scott, R. Bryce-Smith, P. J. Crerar, D. M. Hamilton, R. Powell, D. A. McDonald, N. G. D. Campbell, R. H. Jackson, A. K. Tyler, A. M. M. Wilson, E. Shephard, W. B. Armstrong, E. L. H. Jones, G. A. Neligan, C. P. Silver, J. J. W. O'H. Tobin, Constance M. Ormrod, *M. R. Mullins.

* *In absentia.*

UNIVERSITY OF LONDON

University College Hospital Medical School

The following scholarships, exhibitions, and prizes have been awarded:

Goldsmid Entrance Scholarships: (1) D. A. G. Galton, Trinity College, Cambridge. (2) J. L. Cramner, Christ's College, Cambridge. *Goldsmid Entrance Exhibition:* Miss J. Whitham, Newnham College, Cambridge. *Filliter Entrance Scholarship in Pathology:* J. D. Judah, St. John's College, Oxford. *Atchison Scholarship:* J. M. Wilson. *Magrath Scholarships:* Surgery, D. I. Williams; Medicine, Miss G. R. Briggs; Midwifery, E. W. C. Buckell. *Filliter Exhibition:* N. Myant. *Erichsen Prize:* Miss G. M. Howard. *Liston Gold Medal:* J. A. V. Bates, Miss A. M. P. Snow. *Fellowes Gold Medal:* W. D. M. Paton, H. E. Thomas. *Fellowes Silver Medal:* Miss Joan Hardy, A. N. Smith, Miss S. M. Howard. *Wilfred Trotter Medal:* Miss G. M. Howard. *Suckling Prize in Obstetrics and Gynaecology:* P. E. Hughesden.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At the quarterly meeting held on July 30, with Sir Charles Wilson, President, in the chair, the following were elected officers for the ensuing year: *Censors,* H. Letheby Tidy, A. G. Gibson, G. E. S. Ward, Geoffrey Marshall; *Treasurer,* C. M. Hinds Howell; *Registrar,* H. E. A. Boldero; *Harveian Librarian,* T. H. Arnold Chaplin; *Assistant Registrar,* A. A. Moncrieff.

The President announced the award of the Moxon Medal to Prof. L G. Parsons for his observation and research in clinical medicine, especially in paediatrics; the Weber Parkes Prize to Prof. G. S. Wilson for his work on tuberculosis; and the Murchison Scholarship to H. J. Anderson, M.B.

Membership

The following candidates, having satisfied the Censors' Board, were elected to the Membership of the College:

A. R. D. Adams, M.D., H. S. Banks, M.D., R. Daley, M.B., J. V. S. A. Davies, B.M., J. Denfield, M.B., J. R. Dow, M.B., R. M. Evans, M.B., J. E. (O'Neill) Gillespie, M.D., I. R. S. Gordon, M.B., E. R. Gubbay, M.B., F. W. Gunz, M.B., J. T. Harold, M.B., A. M. Jones, M.B., D. W. Liddell, M.B., R. A. Moir, M.B., Frances J. Pounds, M.B, G. E. O. Williams, M.D.

Licences and Diplomas

Licences to practice were conferred upon the following 296 candidates (including 35 women) who have passed the final examination of the Conjoint Board, and have complied with the by-laws of the College:

P. B. Adamson, Khairunnisa B. Ahmed, W. B. Alexander, E. B. Allen, J. N. H. Andrews, A. H. Ansari, P. Arnold, J. P. B. Arthur, A. N. Ashworth, W. O. Attlee, A. le P. Avenell, D. J. Avery, Ursula M. Bailey, W. E. S. Bain, R. F. Barlow, E. T. Bassadone, J. A. Bassett, J. A. V. Bates, D. C. P. Battersea, Mary R. Bayliss, R. H. Beer, J. Beeston, M. R. Beg, A. d'A. Bellairs, Elisabeth I. Bennett, J. Besden, J. E. C. Bevan, G. A. Binns, C. A. K. Bird, N. N. Blaxland, T. H. Blennerhassett, V. Y. Bockner, Anne Bolton, W. H. Bond, M. M. Boyle, R. J. K. Brown, Hilda E. Bullen, N. R. Butler, J. S. Cainan, T. O. Candler, P. N. Cardew, F. S. Carter, A. W. H. Challis, Elinor H. Cleminson, F. C. Clouting, F. Cockcroft, N. A. Cohen, G. V. Cole, J. G. L. Cole, P. J. Collard, Stella M. E. Cornes, J. C. F. Cregan, N. F. Crofts, G. H. R. Curnock, M. H. Dale, A. J. Danby, H. G. Danziger, I. N. Darbyshire, G. I. Davies, Audrey M. Dealler, J. Dean, Margot H. Dickson, E. J. Doel, W. A. dos Santos, K. M. Duncan, D. H. Edwards, Lorna B. Egan, E. N. Emmerson, R. M. Emrys-Roberts, D. L. Evans, G. C. D. Evans, R. A. F. Evans, A. J. Fairrie, J. K. Farquhar, S. Fazekas, N. R. E. Fendell, J. H. L. Ferguson, G. E. Ffrench A. B. Fieldsend, Mary FitzClarke, J. L. Fluker, Joan Freeman, A. R. Freitag, P. S. Gardner, J. B. A. Gibson, T. R. Gilchrist, E. Giordani, F. S. Glassow, Daphne I. L. Gleed, Edith L. Godwin, A. Goldberger, T. E. W. Goodier, N. J. Goorney, Eileen M. Goronwy, G. Graves, J. W. Graves-Morris, Beatrice A. J. Gregory, J. D. Grene, P. J. Haga, J. T. C. Haigh, R. D. M. I.-K. Harkness, T. J. R. Harley, S. S. Hart, T. G. Harvey, Sheila Haslop, Patricia L. F. Heaton, Angela B. G. Hefferman, Edith Hertz, W. J. B. Hett, G. E. Hicks, D. H. Hiley, D. Hilson, E. J. Holborow, R. A. Holden, R. H. Hughes, Dorothy M. Hyde, H. Isenberg, P. D. James, H. V. Jones, J. G. Jones, R. N. Jones, J. H. Joseph, J. A. Judson, R. N. H. N. Kahan, C. H. Kaye, H. R. Kefford, B. J. Kelleher, D. E. Kessler B. T. Kieft, B. Klein, J. M. S. Knott, E. L. Knowles, D. G. Lambley, T. C. Langdon, A. Lask, D. N. Lawson, H. M. Lawson, J. H. T. Lawton, A. G. Leacock, Alice M. Lloyd, J. C. Lloyd, G. C. Lloyd-Roberts, H. E. Lockhart-Mummery, R. L. Lunt, I. A. J. McCready, S. A. MacDonald, Annabella J. McGowan, A. B. McGrigor, J. S. McNair, J. J. Macneil, E. A. Malkin, G. Martyn, R. M. S. Matthews, Helen M. Mayer, Grace E. Mellows, S. J. T. Merryfield, R. B. Meyer, R. G. Moore, K. C. Morris, H. C. Mukerji, C. A. B. Murphy, G. C. Myddelton, G. J. Myers, J. F. Neil, L. Neville, J. L. Newman, H. A. B. Nicholls, J. C. Nixon, C. L. Noble, Deirdre R. B. O'Brien, R. Oddy, A. F. Ollerenshaw, H. F. Osmond, D. A. H. O'Sullivan, R. Owlett, Nancye M. Park, H. M. Parsons, A. J. Partridge, J. P. Patel, V. G. Patel, P. Pattison, J. P. Paul, J. D. Paulett, J. F. Pearce, K. G. Pendse, E. S. Perkins, J. A. Peters, A. B. Philip, J. Phillips, R. M. Pitts, F. Pollak, J. M. B. Pooley, A. C. P. Porter, E. C. Poulton, C. Pownall, T. J. G. Price, Mary Pringle, P. E. Prudhoe, R. T. M. Puddicombe, S. H. Purser, I. M. Ramsden, A. P. H. Randle, P. K. Renshaw, A. S. Riddell, D. S. Ridley, Dorothy Roberts, D. J. Robertson, W. C. Robinson, W. Rogers, Glenys M. Roper-Hall, H. M. J. Rowan, A. J. D. Rowlands, J. H. B. M. Rowlaods, J. K. Rowntree, P. F. Rudd, D. C. Sachdeva, J. G. Salter, M. C. Sanyal, Irene M. Sarner, E. Schindel, G. B. D. Scott, Sophy H. L. Scott, T. O. Scudamore, D. E. Sharvill, C. H. Shaw, M. P. Sherwood, D. Shiers, M. Shrieber, Janet W. Shrimpton, G. A. Silley, W. B. G. Simmonds, J. H. Simpson, N. R. W. Simpson, A. C. Sinclair, J. F. P. Skrimshire, R. D. Slack, A. P. Smith, H. N. Smith, R. S. Smith, W. A. Smurthwaite, P. R. Sondhi, V. H. Springett, H. G. Stack, F. H. Staines, P. S. Steen, B. A. F. Stephens, D. N. Stewart, J. G. Stewart, L. V. Sthyr, A. Stoddard, J. C. Swanson, V. R. Tadros, G. H. Templeman, D. C. Tennant, M. N. Teubes, H. O. Thomas, B. A. Thompson, J. R. Thompson, A. L. Thrower, D. C. Thursby-Pelham, R. H. Townshend, B. Townsley, R. N. Tronchin-James, A. F. Tuboku-Metzger, S. G. Tuffill, L. Turgill, G. S. Udall, G. H. Valentine, A. E. Wall, D. K. T. Wallace, G. T. Wallace, A. D. J. Watt, G. H. Wattley, N. C. Welply, J. C. N. Westwood, E. P. Whitaker, D. A. White, E. N. Whitley, R. U. Whitney, H. G. Whitworth, B. F. Wickham, F. R. Wilde, M. Wilks, D. I. Williams, J. I. Williams, T. M. Williams, L. A. H. Willson, Anna M. T. Wilson, F. P. Winbourne, J. L. Withey, G. Worden, G. H. Wright, H. B. Wright, J. K. Wright, H. J. Young, A. Zoutendyk.

Diplomas in Public Health (three), Psychological Medicine (nine), and Laryngology and Otology (five), were granted jointly with the Royal College of Surgeons of England to the successful candidates whose names were published in the report of the meeting of the Royal College of Surgeons in the *Journal* of July 25 (p. 115).

The following Diplomas were also granted, jointly with the Royal College of Surgeons:

Diploma in Anaesthetics.—Helen M. B. Alcock, R. E. Angel, T. H. Baillie, E. J. W. Barnard, J. R. J. Beddard, Stella G. Braithwaite, T. R. M. Bristow, A. Coleman, Florence K. Costello, J. P. Cuddigan, J. H. Dixon, J. D. Ebsworth, Phyllis M. Edwards, A. J. Evans, Mita Frost, Edith Gilchrist, G. P. Goodwin, J. R. Hindmarsh, A. R. Hunter, Jean E. W. Inglis, Edith S. M. Merry, R. E. J. Pembrey, S. F. Polley, Norah K. Priestley, H. J. Richards, G. K. T. Roche, G. F. Smith, A. E. Ward, F. Widlake, Gertrude A. Willis.

Diploma in Ophthalmic Medicine and Surgery.—Margaret L. Clay, K. D. Foggitt, S. S. Freedman, D. P. Gurd, H. E. Hobbs, M. B. Longinotto, W. T. C. Lumley, G. O. M. Neatby, R. L. Richards, P. M. Wood.

Diploma in Medical Radiology.—F. H. Bonnell, G. C. D. Evans, R. C. M. Hadden, H. J. Johnson, Margaret D. Snelling, J. H. Stranger.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary meeting of the Council was held on July 30 with Sir Alfred Webb-Johnson, President, in the chair. Mr. Cecil Joll was elected a member of the Surgical Section of the Board of Examiners in Dental Surgery for the year ending June 10, 1943. It was decided to continue for the duration of the war the recognition of the post of senior house-surgeon at the Devonport section of the Prince of Wales's Hospital, Plymouth, for the six months' surgical practice required of candidates for the Final Fellowship examination. It was also decided to recognize the posts of resident surgical officer and senior house-surgeon at the Royal Salop Infirmary, Shrewsbury, for the six months' surgical practice required of candidates for the Final Fellowship. Arrangements were made for the institution of a Research Chair in Ophthalmology, tenable at the College and at the Royal Eye Hospital.

Diplomas of Membership were granted, jointly with the Royal College of Physicians, to the candidates whose names appear in the report of the meeting of the Royal College of Physicians.

Diplomas in Ophthalmic Medicine and Surgery (ten) and in Medical Radiology (six) were granted, jointly with the Royal College of Physicians, to the candidates whose names appear in the report of the meeting of the Royal College of Physicians.

Blane Medal

The Gilbert Blane Medal was presented at the Royal College of Surgeons. The presentation was made by Surgeon Vice-Admiral Sir Sheldon Dudley as Medical Director-General of the Navy, in the presence of the First Lord of the Admiralty, the President of the Royal College of Physicians, and the President and Council of the Royal College of Surgeons. The recipient was Surgeon Commander Edward Rex Pascoe Williams, and the award was made to him for his original work on blast effects in warfare.

The Medal was founded in 1830 by Sir Gilbert Blane, Bt., F.R.S., a distinguished physician, best known for his service under Rodney and for sanitary reforms in the Navy and for successful measures for the prevention of scurvy. It is awarded annually to a medical officer in the Royal Navy for "skill, diligence, humanity, and learning in the exercise of professional duties."

The Honorary Medal of the College has been awarded to Viscount Nuffield, G.B.E., D.C.L., F.R.S., in recognition of his conspicuous service in assisting the improvement of natural knowledge and of the healing art and of his many liberal acts and distinguished labours inspired by the desire to advance the science and practice of medicine and surgery. The Honorary Medal was instituted 140 years ago, and this is the 19th occasion on which it has been awarded.

ENGLISH CONJOINT BOARD

The committee of management of the Examining Board in England has decided that until further notice the examinations for the Diploma in Tropical Medicine and Hygiene (D.T.M.&H.) shall be discontinued.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College, held on July 25, with Mr. J. W. Struthers, President, in the chair, the diploma of Honorary Fellowship of the College was presented to Lieut.-General Alexander Hood, C.B., C.B.E., Director-General Army Medical Services, and to Prof. Antoni Jurasz, Dean of the Polish Medical Faculty, University of Edinburgh.

The following, having passed the requisite examinations, were admitted Fellows:

G. Bankoff, H. Din, T. J. Evans, Dora J. B. Falconer, A. P. Gracie, J. D. Hallissy, A. W. Kay, G. R. Nicks, D. L. Savill, J. A. E. Watts, E. B. Wild.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examination, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.&S.Glasg.:

G. E. Barnard, K. H. Bayatti, W. L. Bilsland, W. Brydone, B. H. Budoff, R. S. David, A. R. N. Dhanji, Jess Diamond, E. S. M. Douglas, M. R. El Sarraff, A. H. Esmat, M. S. A. El Hamid, C. C. Haupt, El S. A. K. Himmat, P. S. Huck, C. L. Isitt, H. E. Katz, I. McKechnie, R. Mitchell, L. E. Mosscrop, M. A. Motagalli, A. C. Muir, J. A. Murdoch, J. A. M. Ratcliffe, H. Rosenberg, A. Schmookler, M. Schneider, J. S. Seaton, S. P. Selvadurai, J. K. K. Stielau, B. Stillerman, S. Tenzer, I. A. McL. Thomson, R. Vannithamby, Harry Walker, I. Wolff.

The following graduate of a recognized foreign university was also admitted a licentiate:

M. Gross, M.D.Berlin.

The Services

NAVAL AWARD

Temp. Surg. Lieut. Gordon Paton Fahrni, R.C.N.V.R., has been awarded the D.S.C. for great bravery and devotion to duty.

EFFICIENCY DECORATION

The King has conferred the Efficiency Decoration of the Territorial Army on Lieut.-Col. (Temp. Col.) J. Rannie, R.A.M.C.

R.A.F. AWARD

The King has approved the award of the George Medal to Squadron Leader Frank George Mogg, A.A.F., and the British Empire Medal (Military Division) to Leading Aircraftman Peter Nigel Rowland, R.A.F. The citation in the *London Gazette* states:

One night in May, 1942, an aircraft crashed on the edge of an aerodrome and immediately burst into flames. Squad. Ldr. Mogg (the station medical officer), accompanied by Leading Aircraftman Rowland, hastened to the scene and found that three members of the crew had been thrown clear of the main part of the wreckage and killed; a fourth member had managed to extricate himself from the tail turret. A wireless operator was, however, trapped in the blazing fuselage, being entangled by his harness and flying clothing, which was burning. Showing complete disregard for their own safety, Squad. Ldr. Mogg, clad only in overalls over his pyjamas, and Leading Aircraftman Rowland went into the blazing wreckage to rescue the unfortunate airman. By lying flat on the floor and using a greatcoat as a shield Rowland was able to afford some protection for the medical officer whilst the latter administered morphine to the injured operator. Rowland afterwards assisted Squad. Ldr. Mogg in cutting the airman free and in extricating him from the aircraft. During the time that they were working in the wreckage two oxygen bottles exploded within a few feet of their heads, and there was grave danger that others might have done so at any time. Squad. Ldr. Mogg was badly scorched and sustained burns to his hands and wrists, but, despite this, he accompanied the dying wireless operator during the journey by ambulance to hospital some six miles away. He then fainted and had to receive medical attention. Leading Aircraftman Rowland was also burned on the hands and wrists. Both rescuers displayed gallantry of a high standard.

CASUALTIES IN THE MEDICAL SERVICES

An Admiralty Casualty List published on July 27 gave a list of the ship's complement lost in H.M.S. *Dorsetshire*, sunk by enemy action in the Bay of Biscay last April. Among them was Temp. Surg. Lieut. STANLEY WALTER PRATT, R.N.V.R., of Leighton Buzzard, who was posted as "Missing, Presumed Killed." He was educated at University College Hospital, London, and took the M.B., B.S.Lond., and the M.R.C.S., L.R.C.P. in 1936, after which he served as house-surgeon and obstetric house-surgeon at U.C.H. and house-physician at Leicester Royal Infirmary. He entered the R.N.V.R. in May, 1940, and was recorded as missing in the *Journal* of May 23 (p. 656). He was a member of the B.M.A.

Prob. Temp. Surg. Lieut. JOHN DOUGLAS JAMES, R.N.V.R., is posted as "Missing, Presumed Killed" in H.M.S. *Belmont* in an Admiralty Casualty List published on Aug. 1. He was born on July 5, 1916, qualified M.R.C.S., L.R.C.P. in 1941, and entered the R.N.V.R. as temp. surg. lieut. in Nov., 1941. His home was at Wolverhampton. He was a member of the B.M.A.

Temp. Brigadier FRANCIS GERALD AUGUSTUS SMYTH, C.B.E., R.A.M.C., died in a Middle East hospital on July 2. He was born in 1891, the youngest son of the late Col. F. A. Smyth, I.M.S., of Weymouth, and at St. Bartholomew's Hospital gained the Kirke's gold medal and scholarship in medicine, the Brackenbury medical scholarship, and the Burrows prize in pathology in 1913. He qualified M.R.C.S., L.R.C.P. in 1914 and took the M.B., B.S. degrees of the University of London in 1923. He served in France and later in India during the war of 1914-18, with a commission in the R.A.M.C., S.R. After the war he took a permanent commission as capt., was promoted major in 1926, lieut.-col. in 1937, col. in 1938, and temp. brigadier in June of this year, and had served in Egypt, India, and Palestine before the outbreak of the present war. He was appointed an O.B.E. in April, 1941, for distinguished services in the Middle East, was promoted C.B.E. in July, 1941, and was mentioned in dispatches in December, 1941. He had been a member of the B.M.A. since 1917, and in 1930 was a member of the Egyptian Branch Council.

Missing.—Capt. H. Bloom, R.A.M.C., Major J. A. G. Carmichael, R.A.M.C., Capt. H. Houghton, R.A.M.C., Capt. G. Lancaster, R.A.M.C., Capt. F. J. D. Webster, R.A.M.C.

Missing, Believed Prisoner of War.—Flying Officer J. Simpson, R.A.F.V.R.

Prisoners of War.—War Subs. Capt. W. G. H. Allen, Lieut. J. W. Anderson, R.A.M.C., Temp Major J. D. Fraser, Temp. Major J. D. A. Gray, R.A.M.C., Major G. F. Harrison, Capt. A. F. Hutchison, R.A.M.C., War Subs. Capt. J. A. MacLeod, R.A.M.C., Temp. Surg. Lieut. R. St. C. Mooney, R.N.V.R., Major J. H. Prain, Temp. Major O. G. Prosser, R.A.M.C., Lieut.-Col. J. K. Steel, R.A.M.C., Capt. J. A. Sutherland, R.A.M.C., War Subs. Capt. A. C. P. D. Thomson, R.A.M.C.

The announcement concerning Surg. Lieut.-Cmdr. Walter Gordon Gill, R.N.V.R. (mention in dispatches), published in our issue of January 24, p. 132, should have read Surg. Lieut.-Cmdr. William Gordon Gill, R.N.V.R.

Medical Notes in Parliament

House of Lords Debate on Tuberculosis

In the House of Lords on July 28 Lord DAVIES drew attention to the failure of the Ministry of Health to deal with the staffing requirements of institutions for the treatment of tuberculosis. He appealed to the Minister to take every step he could to increase the facilities for treatment of tuberculous patients and to use the accommodation in the emergency hospitals until the beds there were required owing to the war. The Earl of HUNTINGDON deplored the tremendous depletion in the number of doctors available for civilians. Some way ought to be found whereby the War Office could arrange for the big and almost immobilized reserve of doctors in the Forces to go out and take evening surgeries, and so help the immensely overworked general practitioner.

Viscount DAWSON OF PENN said that although we were concerned with the increase in tuberculosis in this war, we should keep a sense of proportion. A more anxious feature was the selective character of the infection among different classes. In this war, as in the last, there was a tendency for increase of infection in young women. The most notable characteristic of tuberculosis in this war so far had been an extension of the infection among young children. It was particularly noticeable in the higher incidence of tuberculous meningitis, from which there had been increased mortality amounting to 50%. The cause of tuberculosis in war was, broadly speaking, a combination of more opportunities for infection and decreased resistance. It was true to say that, on the whole, the disease was under control, and there was no sign that it was running away with us, although the total rise of mortality in Great Britain during the war, which was 13%, was a considerable figure. Tuberculosis was a germ disease which did not come in waves on us; it was always with us; its root was in almost every country.

The Problems of Infection

To grasp the problems of infection, Lord Dawson asked the House to consider in what way people contracted tuberculosis. There were three ways: one was by contact with the expectoration of a case of established disease; a second was by the reawakening of the disease in someone who had had tuberculosis and recovered from it; and the third, because tuberculosis

was conveyed by drinking the milk of a tuberculous dairy cow. In a country like this, where a large proportion of the cattle were tuberculous, it would be a wise precaution to pasteurize the milk. Pasteurization was patchy; it was extremely good in London, good in some boroughs and bad in others, while in the country districts more of the milk drunk was raw. While children were in London they drank pasteurized milk, but since they had been evacuated to the country they had drunk raw milk. Investigation was going on to confirm or refute what he was going to say, but it was not unreasonable to suppose that the increase in tuberculosis in children might be accounted for partly by the fact that they had passed from drinking pasteurized to drinking raw milk.

Towards Mass Radiography

Referring to lung tuberculosis, Lord Dawson said that here infection was invariably brought about by contact with the expectoration of an established case, and it was obvious that under the overcrowded conditions of wartime, with the lack of ventilation and other difficulties, the opportunities for contracting tuberculosis must be greater than in peacetime. The question was, how to reduce the trouble to a minimum. The chief difficulty lay in the fact that it was quite common for an infected person in a factory or a home to have symptoms so vague that it was not realized that he was an infected person. Progress was being made in the establishment of mass radiography. We were not dependent solely on the U.S.; there were machines in this country which had been standardized according to an agreed pattern, and which would be turned out in increasing numbers from now onwards. The machine had the advantage that in skilled hands—he emphasized those words—as many as 3,000 examinations a week were possible, and it was possible to organize the examination of a whole factory in a very short space of time. He thought this could be done far better by persuasion than by compulsion. There were good grounds for supposing that mass radiography would be received with increasing favour as the people concerned understood it. That would lead to the discovery of early cases, which were difficult to find by other means. We had to be careful not to speak too optimistically about new inventions. Mass radiography was going to be a great aid, but it had to grow into our system of medicine discreetly. To dispatch large numbers of machines all over the country without proper teams to work them would make a very bad beginning and lead to false conclusions. He had reason to think that the Ministry and the medical services of the armed Forces were aware of that. It was easy to see that if we could remove one infected person from a part of a factory which might contain a hundred people, or take one infected person away from his home at an early stage, we might do much towards reducing the incidence of this disease.

Education without Alarm

On the question raised by Lord HUNTINGDON about the depletion of doctors, Lord DAWSON said there had been no more depletion than was really necessary. The Army, where it could, gave facilities for medical officers in military depots to give a hand. Referring to the education of the public by the cinema, he said he was doubtful of this. A difficulty in all matters concerning health was to give information without producing alarm, and one of the things we had to be careful about in mass radiography was not to raise a sense of alarm among the workers. The danger was that they would swing from indifference to over-anxiety, and he would rather have indifference than over-anxiety in the case of illness. He thought that mass radiography, so far as we had watched it up to the present, had been well received, and if it was presented to the people as it should be presented, as a means of establishing how well people were and not how ill they were, it could be useful. It should be made part of a health measure, which was one of the features of the Youth Movement to-day, as contrasted with health propaganda which made a self-conscious people.

Speaking on rehabilitation Lord Dawson said we must realize that in tuberculosis there must always be a long period between the end of sanatorium treatment and full-time work. He thought that the Ministry of Health were fully alive to this, and that they proposed to consider seriously the maintenance and subsidizing of tuberculosis subjects for a period from the time they left the sanatorium to the time when they got back to work—if they were on a half-time basis, to make up their wages for so many weeks or months. As regards nurses, if it was made clear that there was no more risk of a nurse getting tuberculosis in a sanatorium than in the ordinary ward of a hospital, in fact, rather less if anything, and if in some way the care of the tuberculous patient could be made part of a nurse's duties—she might, for example, be seconded from medical and surgical wards to tuberculosis wards—the difficulty could to a large extent be got over. Of one thing he was sure, and that was that to start any process of compulsion, to make a nurse take up a particular phase of nursing, would end in failure. If an adequate appeal were made, and tuberculosis were made part of the general care of the sick, he thought that the difficulty about nurses would disappear.

Government Answer: Staff Difficulties

Lord SNELL, replying to the debate, said that Lord Dawson had traversed much of the ground which he himself would have covered. It was of considerable importance to have his judgment that, serious though tuberculosis was, it was not incurable and was not a matter either for a grave view or for despair in regard to its treatment. The difficulty was not one of accommodation ultimately, but of staffing facilities. The lack of an adequate staff in the nursing service was not confined to institutions that had to deal with the treatment of tuberculosis. In sanatoria, for which the Ministry received a periodical return of the available nursing and domestic staff, roughly, 4,800 domestics were employed and 920 more were needed. The position, unsatisfactory as it was, was slightly better than a year ago. In 1941 the deficiency was 17%; in 1942, so far as the figures showed, it was 16%. The need was recognized by the Government, and women domestics in these establishments were reserved. The Ministry of Labour had also instructed regional controllers to give high preference to these needs.

An increase in the total number of nurses was being secured. There were 2,000 employed in tuberculosis sanatoria, and it was estimated that 600 more were required and another 600 for beds in other hospitals for tuberculosis. Therefore we needed an immediate enrolment of about 1,200 nurses. The fear of contracting infection was no doubt one factor which had created a prejudice in the minds of girls and even of their parents, but the Minister had made it clear that nursing in a sanatorium need involve no greater risk of contracting tuberculosis than nursing in other hospitals. He was gratified that Lord Dawson had spoken against compulsion in the service. The Department did not think that compulsion ought to be necessary, but they might have to consider a wiser exercise of their powers of direction. A substantial number of student nurses under 21 were employed on the permanent staff of sanatoria, and every care was taken to prevent them from becoming infected. The Ministry were now proposing to modify the embargo, that nursing auxiliaries of the reserve should not be allocated to sanatoria even if they volunteered, by allowing nursing auxiliaries under 21 to serve in sanatoria if they volunteered, provided, of course, that the fullest precautions were observed in looking after their health.

In Defence of Doctors

Lord Snell admitted that ground had been lost between 1938 and 1941 with regard to the number of deaths from tuberculosis. The stripping of the population of their ordinary doctors might or might not account for some of the increase, but he had never felt able to join in gibes at the medical profession. He had felt it right to defer criticism of their work until they had been provided with social conditions such as were required to make that work effective. We could all criticize the doctors when we were well and they were none the worse for the criticism, but we should remember that they had to work under conditions unsuitable for their work. We ought also to remember that if the national health had improved, as it had, it was probably because we were all of us compelled to do now what the doctors had always told us we ought to do.

The ground lost had been due, he thought, to war conditions, which the doctors and the Ministry of Health could not control. The ways of recovery were known and would be open to us to adopt as soon as the war ended. There would be the possibility of earlier diagnosis. It had been difficult to get the necessary equipment of late, but British-made instruments were becoming available and teams of trained workers would be ready to undertake this work by the end of this year.

Glasgow Small-pox Outbreak

On July 28 Mr. JOHNSTON, replying to Mr. A. Edwards, said that the ages of the small-pox patients removed to hospital in Glasgow during the recent outbreak were: (*a*) 10 cases from the ships aged 17, 19, 20, 21, 22, 23 (four), and 28 years, respectively; (*b*) 29 civilian cases aged 3, 5, 6, 7, 8, 11, 12, 13 (two), 14, 15, 16, 20 (two), 22 (two), 29, 31, 34, 35, 37, 38, 40 (two), 49, 56, 65, 67, and 72 years respectively; and (*c*) 6 fatal cases (included in the foregoing) aged 20, 25, 28, 38, 65, and 72 years respectively. Of the 10 cases from the ship only one was vaccinated before May 29, a passenger, aged 23, who had been vaccinated at 1, 7, and 14 years; all except the original case were vaccinated on May 29 and two were revaccinated on June 10 and 11 respectively, the first vaccination having been unsuccessful.

Medical News

The War Office announces that Col. A. B. Austin has been selected for appointment as Director, Army Dental Service, in succession to Major-General D. Clewer, C.B., whose tenure expires on August 31.

A meeting of the main executive committee of the Medical Superintendents' Society will be held at the Midland Station Hotel, Leicester, to-day (Saturday, August 15) at 2.15 p.m. It may be necessary to continue on Sunday, August 16.

Schemes for the co-ordination of hospital activities are reported from many quarters in these days of medical planning, and the King Edward's Hospital Fund for London, which held its annual meeting in London recently, has, in conjunction with the Voluntary Hospitals Committee, set up a joint committee on co-ordination under the chairmanship of Lord Donoughmore. The Duke of Kent, who announced this in his Chairman's address, said that the Fund was also assisting in the Ministry of Health's survey of hospital facilities in London and the Home Counties. At the invitation of the Fund the chairmen of the London teaching hospitals had met and set up a committee of their own in connexion with the Government's inquiry into the organization of medical schools and the facilities for clinical teaching and research. Some co-ordination had already been achieved in London. For example, there was the Nurses Recruitment Centre of the Fund, through which many hospitals were now obtaining a large proportion of their student nurses. Then there was the Contributory Schemes Committee, established a year ago, which aimed at encouraging only one such scheme for the London region. The treasurer of the Fund announced at the meeting that the total distributed during the year had been, with expenses and special services, £313,000, or £44,000 more than the net receipts, which meant they would have to draw on reserves. Subscriptions, donations, and income from investments were all less than in 1940, but the position as regards legacies for 1942 was better than in 1941, so the outlook for the Fund's finances in this respect was promising.

Dr. G. E. Friend, medical officer to Christ's Hospital, Horsham, has accepted the invitation of the members of the Food Education Society to become its honorary general secretary.

EPIDEMIOLOGICAL NOTES

Discussion of Table

During the week under review large rises in the notifications of measles occurred in Kent, 78, and Nottinghamshire, 55 (108 of the 192 cases were recorded in Nottingham C.B.). The largest decreases were those of Lancashire, 213; Essex, 74; Middlesex, 65; and London, 52.

Diphtheria was more prevalent in the North than in the South. The Counties of Lancashire, Yorks West Riding, and Durham contributed 282 cases out of the total of 710 for the whole country.

Only 3 further cases were reported from the outbreak of dysentery in Derbyshire, and 7 from Cumberland, Penrith U.D., where nearly 200 cases of Sonne dysentery due to infected milk have been reported.

In London 24 cases of dysentery, almost one-quarter of the total, were notified. The only local outbreaks of any size were those of the cities of Oxford, 11 cases, and Birmingham, 8.

The incidence of paratyphoid and typhoid fevers has been at a very low level during the present year. Only 176 cases have been recorded in the large towns, compared with 1,268 cases in the corresponding period of last year. Although the incidence has fallen the case fatality has risen; the ratio of deaths to cases has been 1 to 7, compared with 1 to 30 in the same period of last year.

In Scotland the chief features of the returns were a decrease in measles, 32 cases, and an increase in the notifications of acute primary pneumonia, 24 cases. These fluctuations were due to the experience of Glasgow, where measles fell by 34 cases and pneumonia rose by 31.

Small-pox

One further case of small-pox was reported in Glasgow, at the beginning of the month, from an institution where a previous case had occurred. At the beginning of August there were 16 cases of small-pox in hospital in Glasgow and only one in Swindon. Many of the suspected cases have proved to be of chicken-pox.

Returns for the Week Ending August 1

The notifications of infectious diseases in England and Wales during the week included the following: scarlet fever 1,456, whooping-cough 1,116, diphtheria 650, measles 6,476, acute pneumonia 418, cerebrospinal fever 69, dysentery 64, paratyphoid 6, typhoid 9.

No. 29

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 25:

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942					1941 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	89	4	25	1	4	184	11	42	3	8
Deaths		—	1				2	2		
Diphtheria	710	35	156	65	14	852	23	161	27	32
Deaths	13	—	3	—	—	19	—	3	—	1
Dysentery	101	24	61	—	—	85	2	44	3	—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	2	—	3	1	—	2	—	—	—	—
Deaths		—	—				—	—		
Enteric (typhoid and paratyphoid fever)						44	1	3	5	6
Deaths						6	—	1	—	—
Erysipelas		—	47	3	1		—	35	9	1
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				84						
Deaths	49	7	15	9	3	35	1	5	12	5
Measles	6,817	695	209	40	142	4,610	130	48	191	—
Deaths	4	1	2	—	1	3	1	—	5	—
Ophthalmia neonatorum	110	3	17	1	—	88	5	17		—
Deaths										
Paratyphoid fever	11	—	3	—	—	329	7	29	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	479	12	4	—	3	531	18	3	—	—
Deaths (from influenza)	3	1	—	—	1	4	12	2	1	—
Pneumonia, primary			153	19				108	16	
Deaths		—		5	6		—		3	—
Polio-encephalitis, acute	5	—				4	1			
Deaths		—					—			
Poliomyelitis, acute	12	1	—	2	—	10	—	4		
Deaths		—	—				—	—		
Puerperal fever	—	4	5	1	1	—	—	12	2	—
Deaths		—					—			
Puerperal pyrexia	154	17	20		3	132	11	11		4
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,516	80	242	37	35	718	24	128	31	16
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	2	1	11		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	10	1	1	8	2					
Deaths	1	—	1	—	—					
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,125	105	13	57	12	4,662	244	49	122	5
Deaths	6	2	—	1	—	24	2	2	2	1
Deaths (0–1 year)	296	38	72	43	17	262	21	53	20	16
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,652	500	568	170	108	3,709	447	534	169	97
Annual death rate (per 1,000 persons living)			12·8	11·3	†			11·6	11·2	
Live births	6,028	708	894	347	307	4,565	345	789	324	185
Annual rate per 1,000 person living			18·5	23·4	†			16·0	21·5	
Stillbirths	207	23	39			187	9	39		
Rate per 1,000 total births (including stillborn)			42					47		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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QUERIES AND ANSWERS

Itching of Limbs

Dr. W. A. MILLIGAN (London, W.1) writes: I have a patient, male, aged 79, who for the last two years has suffered from intolerable itching of the skin, more especially round the ankles, thighs, and arms. No rash of any kind, except the marks from scratching. All the irritation goes completely whenever he puts on his clothes in the morning, and does not trouble him again till he takes off his clothes at night. All the ordinary remedies have been tried, with no effect. His organs are all quite healthy, except for a slight prostatic enlargement. Can anyone suggest a treatment?

Artificial Respiration in Phosgene Poisoning?

Dr. F. C. EVE (Hull) writes in reply to Dr. J. L. Barford who asks (Aug. 1, p. 148) for information about the above question, on which opinions differ: In 1938, I gave a lecture in London on "gravitational nursing" in which various uses of my tiltable bed were demonstrated. It can be tilted (and clamped) around a central axis at any desired angle, head up or head down. When the clamps are removed the bed can be used to produce artificial respiration efficiently by Eve's rocking method (a dozen double rocks a minute through a total range of about 60° shifts the diaphragm up and down by gravity: see *Lancet*, March 11, 1939). At the lecture a colonel in the R.A.M.C., who had experience of "choking" gases in the last war, was in the chair. He felt confident that the steep head-down tilt available in this bed would be very valuable in cases drowning in their own secretions from gas poisoning. He sent the manufacturer to the War Office with a note to that effect. Later, a number of these beds were ordered by the Ordnance Dept. and also by the Air Ministry. Although I cannot speak from experience of irritant gas poisoning, my original case of a child drowning in her own secretions (from post-diphtheritic paralysis of the diaphragm) was quickly relieved of her "death-rattle" by a steep head-down tilt and then permanently cured by two days of artificial respiration by rocking. Hence the tiltable bed should certainly relieve cases of gas poisoning in the "drowning" stage by the drainage (? intermittent) of a steep head-down tilt (bed-blocks inadequate). Artificial respiration by rocking could then be proceeded with on the same bed—if and when it gave relief. (The manufacturers are Sidhall & Hilton, Sowerby Bridge, Yorkshire; the price is, or was, very moderate.) The pelvis (not the chest) may be immobilized on the bed by a cross-over girdle extemporized from a motor-car inner tube with 2 cords pulling it upwards and 1 (median) pulling it downwards. These distressed patients would presumably not tolerate Schäfer's method but might stand the rocking method (on and off), which is equally efficient and should aid their respiratory efforts if synchronized with them.

Income Tax

Expenses of Assistant

O. G. is an assistant living away from his principal's premises. Messages are delivered at his residence, and he sees patients there. What proportion of the cost of his rent, heating, lighting, domestic services, etc., can he claim?

*** It is assumed that the professional use of his residence is one of the conditions—express or implied—of his assistantship, otherwise he has no legal claim for any allowance. As regards any proportion, it is impossible to offer any suggestion without full details of the total accommodation, etc., and the extent of professional use. The test is what is reasonable in the circumstances of each case, and O. G. may find that the best way of arriving at a settlement is to call on the inspector of taxes, explain the position, and endeavour to agree a reasonable figure.

LETTERS, NOTES, ETC.

Warmth in Winter

G. D. G. writes: The coming winter hardships of fuel shortage would be greatly mitigated if we were to follow the methods of Northern Chinese who pass through five months of rigorously cold weather, with low fuel consumption, in comparative comfort. They have a simple rule—the colder the climate the more clothes they wear. A wadded gown with long sleeves and wadded trousers bound round the ankle make them independent of a chilly room. Men, women, and children of all classes wear these wadded (cotton-waste) garments. In North China they would laugh at the spectacle one sees in this country of our womenfolk clad in thin "undies" with short skirts and silk stockings shivering with cold. Also, the Chinese do not have the open fireplaces we have with 70% of the heat going up the chimney: they install a small stove in the far corner of the room and lead a long chimney metal pipe right across it. The bigger the room the longer the pipe. This radiates heat from a few pounds of coal in a slow-burning simple stove.

Blood Serum in Local Treatment of Burns

Dr. F. W. SIMPSON (Perth, W. Australia) writes: For some time now I have been using blood serum for the local treatment of burns and wounds of any nature. The burns are cleansed in the usual manner, the loose skin being removed, and serum applied by means of a pipette. This is repeated every hour for 12 hours to tampons applied to the burnt area. In fact the serum simply takes the place of tannic acid in the usual treatment of burns. If the burns are extensive, mixed blood serum is also given intravenously. I think the serum is the ideal dressing for burns of the hand and face, as it is a simple supplement of Nature's own exudation of serum to the raw areas. The results have been excellent. I prepare the serum myself by drawing it off from blood after standing for a few hours. The serum keeps for a month or so if stored in a refrigerator.

Silver Nitrate in Excessive Bleeding

Dr. G. E. H. LE FANU (Liverpool) writes: The interesting case of death in a haemophiliac after tooth extraction reported by Messrs. Endicott, Mitchell, and Qvist (July 11, p. 34) has brought to my mind two cases of oozing after tooth extraction in middle-aged women: one had been bleeding for 15 hours, the other for 24. In both cases arrest of bleeding was immediate after insertion between finger and thumb of a stick of silver nitrate into the cavity and gentle rotation from side to side for a few seconds; bleeding did not recur and healing was uneventful. I have never seen any reference to this method: it should be worth trying.

MEDICINE 100 YEARS AGO

Extract from the *Provincial Medical Journal* for August 13, 1842, being a letter to the Editors under the heading "Professional Etiquette":

"Gentlemen,—In justice to the profession to which I belong, I lay the following glaring case before the public. Had it been a single instance from the same quarter, I might not have noticed it; but as it is only one out of many, equally bad, I select it as of most interest.—I remain, Gentlemen, yours obediently,

WILLIAM REEVES,

Carlisle, August 8, 1842. Surgeon to the Carlisle Dispensary.

"A young man, a dispensary patient under my charge, laboured under stone in the bladder, for which I advised him to submit to an operation. I stated to him that I would perform the operation in his own house, or, if he preferred it, he might go to the infirmary, where more conveniences would be provided than he could otherwise have. This, the young man said, he would decide upon in a short time. However, in the meantime, the apprentice to a general practitioner in this town, Mr. Elliot, met the young man in a joiner's shop, on leaving which the patient said, 'I must go and see Mr. Reeves at the dispensary.' The apprentice asked what ailed him, and the patient answered, 'I have got a stone in the bladder.' The apprentice then advised him to call upon Mr. Elliot, and the lad did so. After the patient had answered Mr. Elliot's questions, and stated that Mr. Reeves had advised him to submit to an operation, Mr. Elliot intimated that if he allowed himself to be operated on he would surely die, and at the same time read to him some statistical table, showing that almost every one died after an operation for stone. Mr. Elliot then proceeded to examine him—stated that there were two stones, and that he could cure him without cutting, or any danger. This the man gladly listened to, and came and told me what I have above stated. I told him I never discovered more than one stone, and if Mr. Elliot had persuaded him to the contrary, he would ultimately find out his mistake. At the same time, I told him that no operation could be unattended with danger. After a short time Mr. Elliot operated, cut down upon the membranous portion of the urethra, dilated the prostate, and took away one small stone."